

JOURNAL

OF THE

AMERICAN VETERINARY MEDICAL ASSOCIATION

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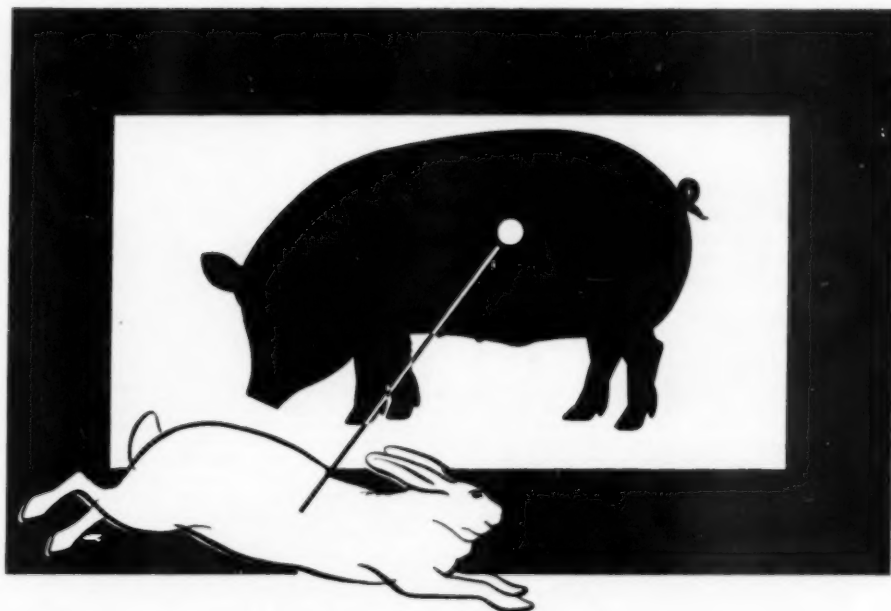
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\$7.50 per annum Foreign \$8.00: Canada \$8.00 Single Copies 75 cts, prepaid in U. S.
Published monthly at 600 S. Michigan Ave., Chicago, Ill., by the American Veterinary Medical Association. Entered as second class matter August 10, 1932, at the Post Office at Chicago 5, Illinois, under the act of March 3, 1879. Additional entry at Mendota, Ill. Accepted for mailing at special rate of postage provided for in Section 538, act of February 28, 1925, authorized August 10, 1932. Reproduction of any part of this publication is prohibited, unless special permission is given. Permission will be given if the purpose seems justifiable and, in signed articles, if the rights or requests of author are not violated thereby. Reprints should be ordered in advance. Prices will be quoted after publication. Please send prompt notice of change of address, giving both old and new. Advise whether the change is temporary or permanent. Address all correspondence to American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill.



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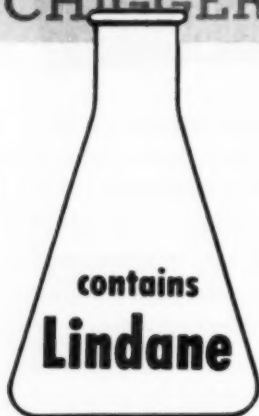
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AVMA ☆ Report

Veterinary Medical Activities

The President's Letter

To AVMA MEMBERS:

It is a pleasure to note that the resident secretaries in California, Florida, Indiana, Maine, Minnesota, North Dakota, Ohio, Ontario, Pennsylvania, and West Virginia have reported that they are actively working on the "grass roots" membership campaign. Congratulations to these enthusiastic AVMA members. The applications have started to come into the central office, which is evidence of the good work being done.



If you haven't already read the timely editorial in the January JOURNAL (p. 36), do so now. It depicts clearly and concisely the need for more members and some of the values of AVMA membership. Read this editorial and I know you will feel the need to do your part in urging your nonmember colleagues to apply for membership at once.

The names and addresses of all resident secretaries were published in the official roster (see pp. 333-334, October, 1951, JOURNAL). Will you all assist the secretaries in the "grass roots" campaign? They will appreciate your help and support, as will I. Let us know that you are behind them by asking for some application blanks to enroll your nonmember friends and colleagues.

This is a chance to help yourself and the organization for, the bigger the AVMA, the more it can do for you.

Very sincerely,

John R. Wells

★ ★ ★
♦ President John R. Wells attended the annual meeting of the Mississippi State V.M.A. at Edgewater Park, Jan. 25-26, 1952, and the annual meeting and conference of the Louisiana V.M.A. in Baton Rouge, January 29-30.

★ ★ ★
♦ President-Elect W. L. Boyd took part in the program of the annual conference for veterinarians at Colorado A. & M. College, Fort Collins, Feb. 18-20, 1952.

★ ★ ★
♦ The Board of Governors (Drs. W. G. Brock, J. R. Wells, and W. L. Boyd) were in session at Association headquarters in Chicago on Saturday and Sunday, Feb. 16-17, 1952.

★ ★ ★
♦ Executive Secretary J. G. Hardenbergh spoke on "Observations on Veterinary Medicine in South America" at the opening session of the Illinois V.M.A. meeting in Chicago, January 23-25.

★ ★ ★
♦ During January, members of the executive committee of the Council on Education inspected the new School of Veterinary Medicine, University of California, Davis, and the schools at the University of Georgia, Athens; Alabama Polytechnic Institute, Auburn; and Tuskegee Institute, Tuskegee, Ala. In February, the committee inspected the new College of Veterinary Medicine at the University of Illinois, Urbana.

★ ★ ★
♦ Dr. C. D. Van Houweling represented the Association at the Poultry Fact-Finding Conference in Kansas City, Mo., February 9.

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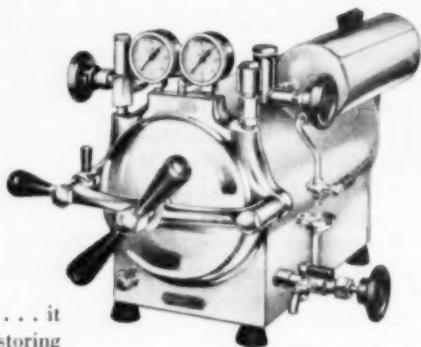
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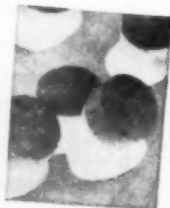
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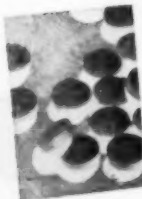
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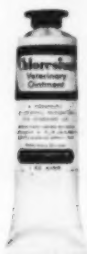
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1. Smith, L. W., and Livingston, A.E.: *Am. J. Surg.* 62:358, 1943.
2. Schaffer, J. D.: *North Am. Vet.* 31:817, 1950.

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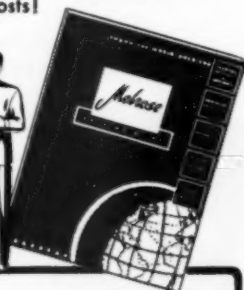
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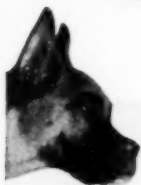
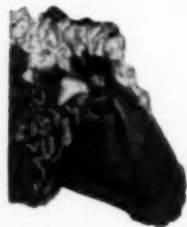


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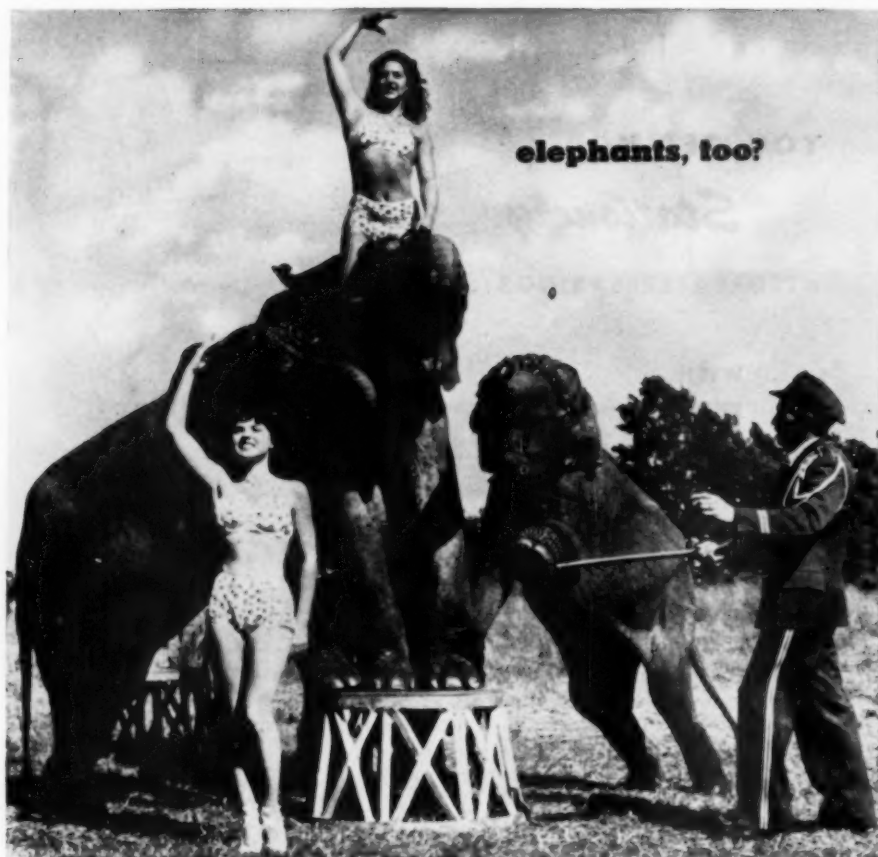
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1. Kejko, H.: N. Am. Vet. 32:826 (Dec.) 1951.

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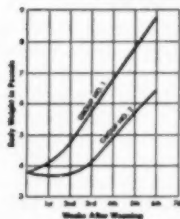
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VOL. CXX

MARCH, 1952

No. 900

Psorergates Ovis — A Cause of Itchiness in Sheep

D. S. BELL, M.S.; W. D. POUNDEN, D.V.M., Ph.D.;
B. H. EDGINGTON, D.V.M.; and O. G. BENTLEY, Ph.D.

Wooster, Ohio

SHEEP, MOSTLY ADULTS, which occasionally rub, scratch, and bite at their wool as if to relieve a mild "itchy" condition have been observed in farm flocks. The condition seems unassociated with the recognized ectoparasitic diseases of sheep in the United States. In most cases, the itchiness rarely has developed further than to cause slight unrest and a taggy and somewhat ruffled and damaged appearance of the fleece. For the most part, farmers cull the few sheep which show any extensive symptoms of this type of itchiness in the belief that the condition is more or less a disposition peculiar to one or a few individuals.

Sheep ticks and lice as well as psoroptic, sarcoptic, chorioptic, and demodectic mites all cause unrest, itchiness, and fleece damage when sheep are affected. These ectoparasites of sheep have all been encountered in the United States. Full descriptions and classifications, with photographs and drawings, allow veterinarians, parasitologists, and animal husbandmen with training in parasitology to recognize and identify each.¹

FLOCK HISTORY

In late March, 1951, among a group of Merino ewes of mixed age, born and raised on the sheep farm of the Ohio Agricultural Experiment Station, an occasional sheep (perhaps 3 or 4) were noticed to bite and chew occasionally at the wool on the rear portion of the body. These sheep had all

been dipped in June, 1950, using low gamma isomer — benzene hexachloride (lhexone) — as the insecticide. The actions of the sheep when first noticed were similar to those infected with a few lice. Careful examination for lice or other ectoparasites was made at the time the wool was scored and graded ahead of shearing. The results were negative — no ectoparasites were found and no significant skin lesions were observed. The sheep had been on experiment comparing corn-treated vs. sulfur dioxide-treated legume-grass silage. The supply of the experimental silage was exhausted, but the note was made that when the feeding test was repeated and if the itchiness reappeared, and in the absence of an ectoparasite, the possibility of some allergic reaction or nutritional disturbance as a cause of itchiness should be considered.



Fig. 1—Normal fleece of the Merino ewe.

From the Ohio Agricultural Experiment Station, Departments of Animal Science and Veterinary Science, Wooster.

The sheep were sheared April 3 and later turned to pasture on April 28. After shearing, the symptoms of itchiness, unrest, and mild distress seemed to disappear.

On Aug. 23, 1951, several Merino ewes (perhaps 4 or 5) in a flock of 49 head were again noticed to show a few tassel-like

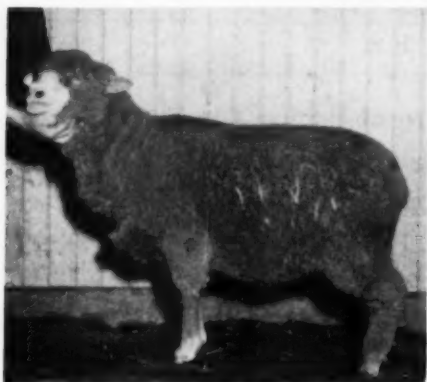


Fig. 2—Early symptoms—small, tassel-like locks hanging to fleece.

locks of wool hanging from their fleece. Observation showed that occasionally when the sheep were at rest one now and then would scratch dog-like, another would rub against some fixed object, while still another would bite and pull at a lock of wool. The symptoms were those usually manifested by sheep harboring a few lice. The best description would be that the sheep seemed to suffer a mild itchiness.

Examination of 5 of the affected sheep for ectoparasites, using a hand lens and also a watchmaker's eye-piece, was made. No parasites were found and no significant skin lesions beyond an occasional slight scurfiness were observed. Microscopic examination of skin scrapings taken in the usually accepted manner from the body area which seemed to be affected were negative. A scraping was made from the pastern of several sheep manifesting the itchy condition. One of these scrapings revealed 2 mites identified as *Chorioptes ovis*, the foot scab or "barn-itch" mite. The possibility of this mite being responsible for the itchy condition was considered even though, so far as the authors are aware, no report has been made of this mite affecting body areas other than pasterns and legs of sheep, with occasional spread to the

scrotum of rams or the udder region of ewes in severe infections. With only 2 mites revealed in several samples from the heel area, this infection was regarded as very slight and unlikely responsible for the itchiness observed.

The sheep were placed in the barn in late August, under frequent close observation. The itchiness continued and a few additional sheep began to manifest the symptoms of mild unrest, with some biting at the wool and especially in the flank between the last rib and the tuber coxae. The ration for the sheep while confined was mixed corn and oats, legume hay, corn, and sulfur dioxide-treated legume-grass silage and iodized salt. Even though the sheep were frequently examined, no identification as to the cause of the itch was uncovered during this period.

EXPERIMENTAL

Mindful that the explanation of the problem might be either an ectoparasite or a nutritional deficiency or disturbance, it was decided in early October to divide this flock of Merino ewes into three similar groups for the purpose of investigating these possibilities. The division was based on (1) age, (2) previous flock history, and (3) degree of symptoms shown. All groups were continued on the basal ration described.

Group 1.—This group of ewes was dipped in a dipping bath prepared by adding 0.67 lb. of high gamma isomer—BHC (isotox)—to each 100 gal. of water. The sheep were held in the bath until the fleece was wet to the skin. This was an attempt to learn whether dipping might relieve the condition and thus indicate the presence of an ectoparasite not yet detected.

Group 2.—This group was fed, in addition to the basal ration, 5.0 ml. per ewe per day of wheat germ oil as a vitamin E supplement. An occasional lamb suffering the characteristic symptoms of stiff lamb disease due to vitamin E deficiency had been produced in the Station's flock. The question had been raised as to whether a vitamin E deficiency could result in a symptom of itchiness.

Group 3.—This group, again under a nutritional approach, was fed the basal ration and, in addition, was given access to trace-mineralized salt furnishing cobalt, copper, iron, manganese, iodine, and sulfur. After

the first two weeks on the basal ration, the legume-grass silage being fed to this group was discontinued, to eliminate the silage-feeding aspect associated with the initial observation on the itchiness.

After five weeks, there appeared to be no lessening of the itchiness in groups 2 and 3. If anything, a few more sheep in these two groups seemed to be showing the symptoms. In the dipped group (group 1), the sheep showed less disposition to bite at the wool, but otherwise manifested itchiness. There were no apparent new cases in this group. This was small indication, but the observation turned attention again toward the possibility of an ectoparasitic infection being present but not yet identified.

Feeling assured from repeated negative examinations that none of the ectoparasites known sometimes to affect sheep in Ohio were present, a review was made of possible avenues whereby some new ectoparasite might have been introduced. This review, based on carefully preserved records of all introductions of sheep to the flock, showed that if a new ectoparasite was involved it might have come from one of many flocks in Ohio, from a flock in one of several other states, from Canada, or indirectly from Britain, Tasmania, or New Zealand. The review established nothing except to indicate that a wide search of the literature covering "itch" in sheep due to an ectoparasite should be made. This led to the work of Carter³ and his discovery of *Psorergates ovis* Womersley, 1941, as a cause of "itch" among Merino sheep in

Australia. Even though Australia has had an embargo against exportation of sheep to countries other than Tasmania and New Zealand, it was decided, nevertheless, to search for the organism observed by Carter.

SEARCH FOR PSORERGATES OVIS

Very deep skin scrapings, as emphasized by Carter, were made on affected sheep after a limited quantity of light mineral oil had been applied to a seemingly itchy area from which the wool had been removed by close clipping. Also, skin clippings and shavings were removed from similar areas. Each sample taken was cut and teased apart for microscopic examination. Each was placed on a slide under cover slip, in most instances with a small quantity of oil added to facilitate examination.

The first 32 slides were prepared from samples taken from 8 affected sheep. A total of 7 small mites were observed which appeared to be about half the size of *Psoroptes* or *Chorioptes* mites. The productive samples were from sheep in all three groups previously mentioned and from 1 itchy sheep in another band of 63 head. The limited number of mites detected in the 32 slides, together with their minute size, the need to scrape deeply or to use skin clippings as sample material, and the possibility of not sampling infected areas, explains the ease with which a negative diagnosis with respect to an ectoparasite being present, had previously been made.

Examination of the mites showed them to be the same or to very closely resemble those described by Carter as *Psorergates ovis* Womersley, 1941.³ He pointed out that this itch mite was somewhat less than half the size of the *Sarcoptes ovis* and approximately one-third the size of *Psoroptes ovis*. Womersley found the size of the adult female to be 189 μ long by 162 μ wide with the measurements for the male and the nymphs,

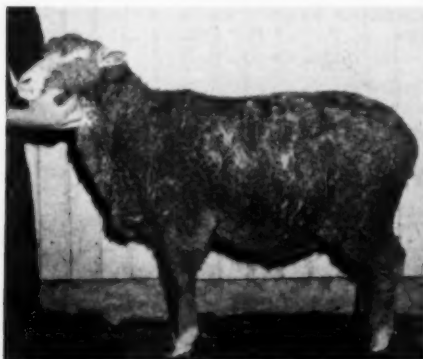


Fig. 3—More advanced symptoms showing effects of biting and pulling at the wool.



Fig. 4—Advanced fleece damage; most extreme damage observed to date.

particularly the latter, to be somewhat less. Measurements of the organisms observed in this study showed them to be similar in size. The shape of the body was almost round, with four pairs of short, stout legs ending in two claws; points

infection, and which caused them occasionally to scratch, rub, and bite and pull at their wool, producing a taggy appearance and otherwise to show symptoms of mild

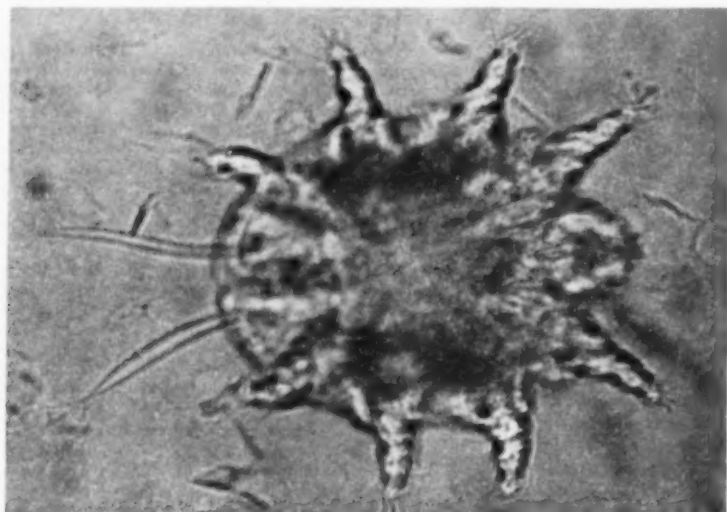


Fig. 5—Itch mite
—adult female
(x 300 and en-
larged to ap-
proximately x
400).

which are in agreement with the descriptions and figures of *Psorergates* provided by Banks¹ and Womersley in Carter's report.² Unlike *Sarcoptes*, *Psoroptes*, and *Chorioptes* mites, the legs of *Psorergates* are not arranged in two groups anterior and posterior but appear fairly equidistant apart along the sides. The presence of long bristles (setae) on the posterior ventral surface — two pairs arising from a pair of lobes in the case of females, one pair in the male — are among characteristic structural details. Nymphs, because of the short construction of their legs, often appear in outline like miniature turtles.

The pathological condition and the parasites associated with it in this case under study appear to be the same as those described by Carter³ in Australia, based on the similarity of the clinical picture and the size and morphological characteristics of the mites.

The existence of this ectoparasite in sheep has not heretofore been recorded in Ohio.⁴ This parasite was not listed in 1945 as an ectoparasite of sheep in North America,⁵ and no report has come to the attention of the authors which revealed more recent identification.

SUMMARY

An itchy condition among adult sheep, unassociated with recognized ectoparasitic

unrest, was observed in a flock of Merino sheep.

Deep skin scrapings and skin clippings and shavings revealed minute mites which, from the clinical picture and morphological characteristics of the mites, were *Psorergates ovis* Womersley, 1941, the "itch" mite of sheep in Australia. The existence of this mite has not heretofore been recorded as an ectoparasite of sheep in Ohio, nor, so far as the authors are aware, of sheep in North America.

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Plans of a Large and Small Animal Clinic

ROBERT E. PIERSON, D.V.M.

Saratoga, Wyoming

BEING THE ONLY veterinarian in Carbon County, Wyoming, I decided it would be advantageous to erect a small veterinary clinic with facilities for large and small animals. Because distances are so great in this part of the country, I originally thought that, by building a clinic, some of these long calls would be partially eliminated, and that most of my work would be confined to a smaller territory. How wrong I was in that assumption!

My work has more than tripled since building the clinic. In fact, my practice has increased to the point where I find it necessary to hire another veterinarian. It is my belief that a veterinarian planning to build a clinic will find his work increasing to the extent that he will need to have a staff of one or more veterinary assistants.

In the spring of 1950, I started making preparations to build a clinic that would be inexpensive and as practical as finances would allow. Having no idea how such a clinic would go over in this community, I was cautious not to invest too much money. Consequently, I built the clinic for less

than \$12,000, which included the unimproved land, plumbing, heating, corrals, and a small hay shed. However, in the last year I have spent about \$2,500 in improvements which included a lawn, fence, five outside runs for dogs, a hay shed, and minor improvements inside.

In brief, the construction of the hospital is of wood with composition asphalt shingles. There are three large stalls, four small ones, and one tie stall for a horse. The floor is cement throughout, with asphalt tile linoleum in the office and small animal room. I use panel ray thermostatic propane gas heat. There are six outside runs for dogs with dog houses and cement flooring. Inside, there are facilities for 10 dogs in steel cages. Accommodation for large animals is around 15 or 16.

When I first built the clinic, there were ample accommodations for 12 small animals and around 12 head of large animals. My large animal business has increased to the point where I have around 25 head of large animals continually. Realizing now the demand for such large animal facilities, I find it necessary to build more corrals and shed space to take care of my large

Dr. Pierson is the owner of the clinic for large and small animals in Saratoga, Wyo.



Fig. 1—The large and small animal hospital, runs, and grounds in Saratoga, Wyo., owned by Dr. Robert E. Pierson.



Fig. 2—The office and dispensing room.



Fig. 3—The small animal examining room and surgery.



Fig. 4—Large animal stalls looking toward corrals and stanchion.

animal practice, which will cost about \$3,000.

Absolute cleanliness is important in a clinic, as well as in the box stalls, at all times. The large animal quarters are cleaned daily, with lime sprinkled on the floor which gives a clean and sanitary appearance. I can not over-emphasize how important cleanliness is, and I have received considerable favorable comment concerning the manner in which I maintain my clinic.

In selecting a location for the clinic, I decided on a spot on the main highway at the edge of the city limits where trucks would have access for loading and unloading stock. I also took into consideration that the State Highway Maintenance Department buildings were directly opposite and I knew that my road would always be in driving condition irrespective of snow and other adverse conditions.

I also had to have facilities for disposing

of animals dying in the clinic, straw and manure, and other refuse. To solve this problem, I had a big pit prepared about $\frac{1}{4}$ of a mile from the clinic — completely isolated from any traffic — where such material is deeply buried.

Dispensing of drugs being an important and necessary part of my practice, I wanted my location close enough to town and to drug stores so that clients would find it convenient to stop for consultation, advice, and the purchase of veterinary drugs, instead of going to the drug store for them.

In the wintertime, most of my patients are calves suffering from common winter problems such as pneumonia, diphtheria, and urethral calculi. Incidentally, this winter I have averaged more than three operations for urethral calculi daily and found that the ranchers appreciated the convenience of bringing their cases into the clinic for surgery.

In the spring, quite a few of the ranchers

Fig. 5—Unloading ramp, corrals, and (right) one end of the hospital building. Note the metal chute and stanchion in the center of the corral.



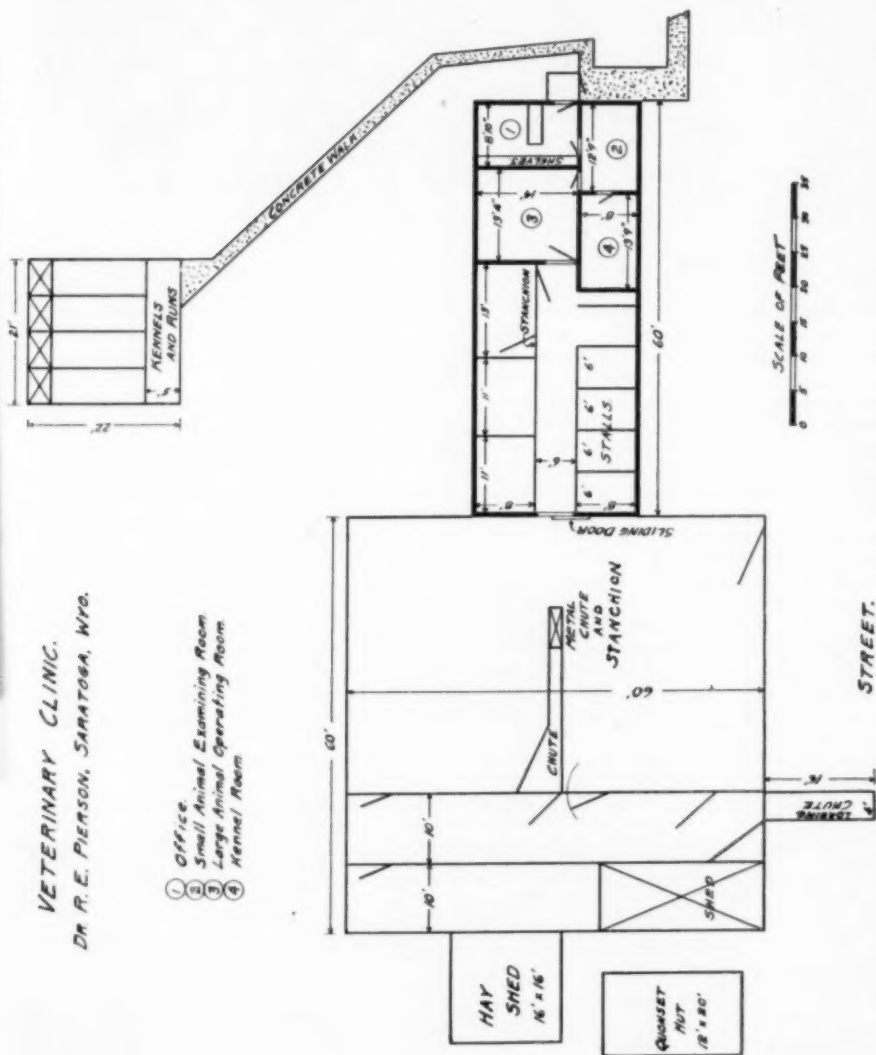
bring their obstetrical cases to the clinic.

I have found that my corral arrangement works very nicely and feel this pattern is worth copying. During the day, we turn as many patients into the corral as we can, as we find that the animals eat better outside than they do in the stalls. Stock water

tanks are placed in every corral, with tank heaters during the winter.

I have a two-room heated quonset hut for living quarters for a hired man adjoining the corrals.

If anyone has not read the article in the December, 1951, AVMA JOURNAL on



plans for a large and small animal hospital written by Drs. Hays and Wright from Billings, Mont., I would encourage him to do so. (See also article by Drs. Madsen and Wilson, pp. 57-65, February JOURNAL.)

My plans are suitable for a veterinarian not wishing to invest an exorbitant sum to erect a very practical small clinic for both large and small animals; and while these plans may be easily improved upon, I believe they are a sound basis on which to begin to plan a clinic. A hospital for both large and small animals is a future service that all veterinarians in mixed practice must offer to their clientele.

Meeting of the Division of Veterinary Medicine, Association of Land-Grant Colleges and Universities

For sixty-five years, the administrative officers of the land-grant colleges and universities have held annual meetings to discuss problems of mutual interest. Three years ago, for the first time, this association established a Division of Veterinary Medicine. There are a number of other divisions such as agriculture, engineering, and arts and sciences.

The 1951 meeting at Houston, Texas, Nov. 13-15, was attended by 22 veterinarians as official delegates from the colleges or universities in as many different states. In addition, a number of other delegates attended and participated in the program of the veterinary division.

Some of the timely, more important topics discussed at this meeting along with pertinent extracts from the report of the secretary are:

There is lack of uniformity in requirements for admission to different colleges of veterinary medicine. Many fully qualified students fail to gain admission to the college of their choice because there are more applicants than can be accommodated. Such students often find that they can not meet the requirements for admission to other colleges of veterinary medicine, even after two or more years of pre-professional college training. The problem is obviously more acute for students residing in the 32 states in which there is no college of veterinary medicine.

"It was pointed out . . . that the stu-

dents who qualify for [the study of] veterinary medicine and do not happen to be in the lucky group selected [for admission] are still well above the average student found in the university, from the standpoint of their academic records.

"There was considerable difference of opinion regarding time that should be devoted to agricultural subjects [in the pre-veterinary curriculum]. There was some general discussion relative to what developments might come from the regional plans of training, as exemplified by veterinary medicine and other subjects which are set up under regional programs in the southern states. There were some 40 in attendance at this meeting."

Concerning foreign veterinarians coming to the United States for graduate training, either for short or longer periods, the following recommendation was made:

Since our experience and observation of foreign veterinarians has shown that these men are well trained in the basic knowledge of veterinary science, but are sadly lacking in the art and practical application of veterinary science, so essential if the program of aid to agriculture is to be successful, we recommend to those responsible for the selection of veterinarians to be brought "over" for training, that they give careful consideration to the selection of individuals, placing more emphasis on those having interests in the clinical fields; that provisions be made to afford a broad training in the veterinary practices followed in this country, as employed in the field, the clinics and laboratories, in order that the agricultural interests of their respective countries may better be served upon their return.

There was considerable discussion regarding the fact that many veterinary departments were not represented at the meeting. The following statement was reported to the senate by the chairman of the Division of Veterinary Medicine:

Since it is quite evident, in reviewing the attendance at the divisional meeting in veterinary medicine, that many of the presidents of land-grant colleges did not designate a member of the veterinary department or college of their respective institution, as delegates to this meeting, we have instructed the secretary of our division to urge, by personal letter, the designation of such a delegate prior to next year's meeting. We also request the support of the senate in urging the respective presidents to assist in this effort.

When Moving, Advise the AVMA

National Brucellosis Committee Merged with Livestock Conservation, Inc.

The National Brucellosis Committee and Livestock Conservation, Inc., were merged on Jan. 10, 1952, for the purpose of consolidating their efforts to develop a program for the eradication of brucellosis. Dr. A. M. Orum, Carthage, Ill., the AVMA representative to the National Brucellosis Committee, and AVMA Assistant Executive Secretary C. D. Van Houweling, assistant secretary-treasurer of the Committee, attended the meeting of the Committee in the Congress Hotel, Chicago, on January 9, where the major item of business was to develop a satisfactory agreement for joining the national Committee with Livestock Conservation, Inc., in a brucellosis program.

The memorandum of understanding for cooperation, which was approved by the ex-

ecutive committee of Livestock Conservation, Inc., the following day (Jan. 10) is as follows:

Proposed Memorandum of Understanding Between Livestock Conservation, Inc., and the National Brucellosis Committee

1) That brucellosis work be expanded in the present program of Livestock Conservation, Inc.

2) That the board of directors of Livestock Conservation, Inc. be increased from 50 to 60 members to include one representative from each of the organizations listed below:

Purebred Beef Cattle Associations
Purebred Dairy Cattle Association
National Association of Swine Records
The Dairy Industry Committee
American National Cattlemen's Association
The National Milk Producers Federation
Texas and Southwestern Cattle Raisers Association
National Association of Artificial Breeders
U. S. Livestock Sanitary Association
U. S. Public Health Service

3) That the executive committee of Livestock



Members of the executive committee of the National Brucellosis Committee and Livestock Conservation, Inc. They are: front row, left to right—Mr. Herman Aaberg, American Farm Bureau Federation, Chicago; Dr. W. J. Embree, New York Central Railroad, Columbus, Ohio; Dr. W. A. Young, the Anti-Cruelty Society, Chicago; Mr. Thos. E. Wilson, Wilson & Co., Inc., Chicago; Mr. W. A. Netsch, Armour & Co., Chicago; Mr. Fred H. Hatch, Chicago Livestock Exchange, Chicago, and Dean H. H. Kildee, Iowa State College, Ames, Iowa.

Back row, left to right—Dr. J. R. Pickard, Livestock Conservation, Inc., Chicago; Mr. Eldon Miller, Livestock Trucker, Iowa City, Iowa; Mr. W. D. Knox, Hoard's Dairymen, Fort Atkinson, Wis.; Dr. S. H. McNutt, University of Wisconsin, Madison, Wis.; Dr. A. K. Kuttler, U.S. BAI, Washington, D. C.; Mr. W. H. Coultas, American Meat Institute, Chicago; Mr. Clint Tomson, American Shorthorn Breeders' Association, Chicago; Dr. J. H. Steele, U.S. Public Health Service, Atlanta, Ga.; Mr. Robert Norrish, Armour & Co., Chicago; Mr. J. F. Cavanaugh, the American Jersey Cattle Club, Columbus, Ohio; and Dr. H. E. Kingman, Jr., Wilson & Co., Inc., Chicago.

Conservation, Inc., be increased from 15 to 19 members to include one representative from each of the organizations listed below:

The Dairy Industry Committee
National Society Purebred Records Association
American National Cattlemen's Association
U. S. Livestock Sanitary Association

4) That the program committee of Livestock Conservation, Inc., with the advice of the board of directors of the National Brucellosis Committee develop the program on brucellosis, subject to the approval of the executive committee of Livestock Conservation, Inc.

5) That sufficient finances be pledged from interested groups to be used to conduct the program on brucellosis. It is suggested that pledges of at least \$30,000 per year for three years be the desired goal.

6) That when funds are available additional personnel be employed by Livestock Conservation, Inc., to include one full-time man on brucellosis plus such additional clerical help as may be required; such personnel to work under the general direction of the executive committee and the general manager of Livestock Conservation, Inc.

The general manager of Livestock Conservation, Inc., Dr. J. R. Pickard, now becomes director of the program for the National Brucellosis Committee, although the Committee retains its officers and committees. The central offices of Livestock Conservation, Inc., are in the Livestock Exchange Building of the Chicago Stockyards.—A. M. Orum, D.V.M., Carthage, Ill.

Vibriosis in Cattle

Vibriosis in cattle is an important cause of abortion, of the sale of cows because of sterility, and of a lowered conception rate in infected cows and heifers. These three clinical manifestations of the disease have caused serious losses in a number of herds by reducing the calf crop and lowering milk production.

The disease has been found in brucellosis-infected herds, as well as herds free from brucellosis. In some untested herds, the occurrence of vibronic abortions among calf-vaccinated animals has been erroneously attributed to failure of the vaccine to protect against brucellosis.

In the laboratory diagnosis of vibronic abortion, both bacteriological and serological methods should be used.

Available information on control may be summarized as follows:

a) Laboratory tests should be used to aid in diagnosis.

b) While the blood test needs further research, the testing of additions to a herd may aid in preventing the introduction of infection.

c) Vaccination with bacterin (killed *V. fetus* cells) appears to be ineffective.

d) Vaccination of calves with live vaccine has been started. Several years will be required to evaluate the results.

e) To prevent the herd sire from spreading infection in known infected herds, artificial breeding with diluted semen containing 500 μ g. of streptomycin per millimeter is suggested when practical.

f) Limited observations suggest that intrauterine infusion of "nonbreeders" and blood-tested, positive, open cows may assist in overcoming apparent sterility owing to vibriosis.—Univ. Pennsylvania Bull., Vet. Exten. Quart., April 3, 1951.

Save Those Syringes

EDWIN J. FRICK, D.V.M.

Manhattan, Kansas

No matter how careless or careful you are, every once in a while a glass syringe will become stuck. Trying to pull them

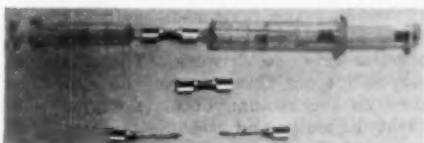


Fig. 1—Showing how needle hubs may be used to free a glass syringe.

apart often breaks them and sometimes even results in a cut hand. Throwing them away is an expensive solution to the problem. Welding two needle hubs together makes a handy gadget that easily and quickly frees most stuck syringes.

Just fill a syringe with water, which is incompressible, attach to the double hub, and then slip on the stuck syringe and exert a little pressure, and presto, the syringe is free. Of course, a little care of the syringe will keep it from becoming stuck too often and lessen the need for this procedure, especially if you keep the barrel and plunger apart when not using them.

Dr. Frick is head, Department of Surgery and Medicine, School of Veterinary Medicine, Kansas State College, Manhattan.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Vaginal Approach for Removal of the Corpus Luteum

LESLIE E. McDONALD, B.S., D.V.M., M.S.

Madison, Wisconsin

A SURGICAL approach to the pelvic portion of the abdominal cavity of the cow was sought in the course of research studies on bovine reproduction. The radical surgery necessary to enter the peritoneal cavity at the paralumbar fossa seemed unnecessary when the vaginal route described by Frank¹ and Guard² for spaying cows or mares offered possibilities of a more readily applicable procedure.

The vaginal approach can be used by most surgeons on dairy heifers or cows weighing over 900 lb. The research problem involved surgical removal of the corpus luteum at sixty days of pregnancy. The vaginal route to the pelvic cavity as utilized appears feasible as a rapid means of invading the peritoneal cavity for several conditions encountered in bovine practice or research work. The persistent corpus luteum that can not be expressed through the rectum, or is expressed with great difficulty and possible trauma, could be removed more easily by actual invasion of the pelvic cavity. The ovary can be reached as late as the sixth month of pregnancy, if it is necessary to remove the corpus luteum to terminate pregnancy. Early pregnancy similarly could be interrupted in this manner if the corpus luteum could not be expressed through the rectum. Stubborn cysts likewise might be ruptured, or a more intimate palpation could be made of the bladder, ureters, kidneys, uterus, oviducts, ovaries, colon, or nearby organs.

Anesthesia is administered easily, the animal experiences very little discomfort, and recovery is rapid. The surgeon does not need additional help to restrain the animal, as is the case when the flank operation is performed.

The Operation. — The animal is stanchioned, epidural anesthesia (10 to 15 ml. of 2 per cent procaine) administered until the animal can barely remain standing, the rectum manually emptied of its contents, the perineal region clipped, scrubbed, and disinfected, and the tail tied high over the rear quarters. The vagina is douched with a mild antiseptic, and the operator's arms scrubbed and lubricated with a mild soap. A sterile rubber glove and sleeve may be used if desired.

If the vulval entrance is too small to admit the arm of the operator readily, an episiotomy³ is employed to prevent trauma. The episiotomy should not be extensive enough to involve the anus, since fecal contamination of the vagina would result. A crescent knife is carried into the vagina and an incision made 1 to 2 in. posterior to the cervix through the dorsal wall of the vagina. One gentle thrust is made in an anterior direction until the peritoneum is pierced, then the knife is withdrawn. Care must be exercised to avoid injury to the rectum which lies dorsal to the vagina. The puncture of the peritoneum can be felt and the knife withdrawn. One finger can then be introduced into the peritoneal cavity and the incision enlarged by forcing additional fingers through the incision. The entire pelvic cavity and posterior abdominal cavity are easily examined. The vaginal incision is left to heal at will, but the possibility of a vaginal herniation of abdominal organs must be considered. Adhesions of abdominal organs may also occur. Careful vaginal examination with a speculum three or four days later should reveal a rapidly healing mucous membrane.

Postoperative care consists of leaving the animal stanchioned for several days to minimize possible herniation of abdominal organs through the vaginal incision.

¹The research work reported by the author in this article was done under an AVMA Research Fellowship.

²Published with the approval of the director of the Wisconsin Agricultural Experiment Station, Madison.

Summary. — A description of an easy, practical surgical approach to the pelvic cavity of the cow has been presented. This surgical procedure, applicable to bovine practice or research, is discussed.

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Fetal Dystocia and Successful Cesarean Section in a Mare

J. FARQUHARSON, D.V.M., and D. D. DELAHANTY, D.V.M.

Fort Collins, Colorado

A 5-year-old primiparous mare was admitted to the Colorado A. & M. veterinary clinic after twenty-four hours of unproductive labor. The referring veterinarian diagnosed the condition as a fetal dystocia caused by a hydrocephalic fetus in normal presentation. On arrival, the mare was standing alert with a temperature of 100 F., pulse of 82, respiration of 21, and mucous membranes slightly congested. A marked edema of the perineum was present and multiple abrasions over bony prominences gave evidence of past rolling. Vaginal examination confirmed the diagnosis and a most unfavorable prognosis was given. Then 21 students were given the opportunity to examine the mare vaginally.

The mare was prepared for a cesarean section using the right paralumbar approach, and 2,000 cc. of 7 per cent chloral hydrate solution were given intravenously over a period of ninety minutes. The operative area was clipped, scrubbed with a germicidal soap and water, shaved, scrubbed again, and then disinfected with ether, alcohol, and zephiran, and amply draped. A 17-in. skin incision was made in the middle of the right flank and the skin edges were protected with sterile towels held with towel clamps. The incision was carried down to the peritoneum which was incised after hemorrhage was controlled.

The right uterine horn was delivered to the incision, where it was packed with sterile towels, the uterus incised, and the large dry foal delivered with some difficulty. Approximately 300 cc. of amniotic fluids escaped from the uterus while it was open. The



Fig. 1—The hydrocephalic foal, the cause of the dystocia.

partially separated fetal membranes were removed, then the uterine incision closed with a double row of continuous Lembert sutures of No. 1 medium chromic catgut with a swaged on straight atraumatic needle. The closed uterus was lavaged with warm sterile physiological solution; and this procedure was carried out in closure of the entire abdominal wall. The muscle layers were closed separately with a continuous simple suture of No. 2 medium chromic catgut. Due to the unfavorable character of the case, 2 gowned senior students were given the opportunity to suture the skin. An interrupted suture of No. 3 monofilament nylon was slowly placed to close the skin. On completion of skin closure, the wound was sealed with collodion and cotton. During the recovery from anesthesia, the animal was given 2,000 cc. of 6 per cent dextrose solution with 2,000-000 units of penicillin G intravenously.

The following day, the recumbent mare was given 1,000 cc. of whole citrated blood. The second postoperative day, the mare came to her feet and immediately a soft-fluctuating swelling was noticed about the

Dr. Farquharson is head of the Department of Surgery and Clinics, and Dr. Delahanty is at the Veterinary Hospital, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins.

ventrum of the wound and she was given another 1,000 cc. of whole citrated blood, and again on the third day. The fourth postoperative day, the transfusion caused a marked anaphylactoid reaction, causing the mare to fall after the administration of 280 cc. of blood. While recumbent, approxi-



Fig. 2—The mare upon completion of wound healing, three months postoperatively.

mately 200 cc. of a bloody mucopurulent discharge came from the vagina. After regaining her feet, she was given 10 mg. of stilbestrol and 5 cc. of posterior pituitary extract intramuscularly with a six-hour interval between injections. This procedure was repeated forty-eight hours later. A partially unexplained clinical anemia caused a fecal sample to be examined ninety-six hours postoperatively, and a heavy strongyle infestation was found.

The wound by this time had a marked accumulation of serum along the entire ventral portion of the incision, and some sutures were beginning to cause skin necrosis at the suture line. By the fifth day, dissolution of the suture line was present and the ventral half of the skin sutures were removed to allow escape of the now seropurulent exudate. Following removal of the sutures, it was observed that the cutaneous trunci muscle was separated partially along the lower portion. Within seventy-two hours, 90 per cent of the skin sutures had to be removed due to two factors: skin pressure necrosis from serum accumulation, and the excessively taut skin sutures.

Throughout the first seven postoperative days, penicillin was administered intravenously and intramuscularly in therapeutic

amounts (3 million units daily) to prevent further wound disruption by bacterial contaminants and extension of the existing metritis.

During the second postoperative week, the mare continued to improve and healthy granulations became visible in the wound now healing by second intention. The metritis was treated by vaginal tamponage through the patent cervix until little exudate was returned on the sponges. The endometrium was then coated as completely as possible with triple sulfa creme (Ortho) and this procedure repeated again in seventy-two hours. Clinically, this appeared to clear up the metritis.

During the third postoperative week, gradual healing of the wound, increase in body weight, and improvement in general condition was noted, and she was dismissed with the wound still to be healed by second intention.

Discussion.—Cesarean section in mares can be done despite variations in technique other than optimal (the vaginal examination by 21 students and the closure of skin by inexperienced personnel), lowered general resistance from parasitism, and in the face of an unfavorable prognosis. The use of antibiotics to control secondary infections and the early attention to complicating factors such as metritis, peritonitis, and parasitism, must be recognized in order that eventual recovery will result from the surgical insult.

Fructolysis and Other Characteristics in Bull Semen

The seminal fluid of animals contains a reducing carbohydrate which has been shown to be fructose. The rate of fructolysis is correlated with both the density and motility of the spermatozoa and can be used as the basis of a quantitative evaluation of semen.

A direct relationship has been observed between fructolysis and the change in pH on incubation of bull semen, higher values for both being associated with a higher initial pH, a poorer buffer capacity, and a lower specific gravity of the seminal fluid. The direct estimation of fructolysis appears to give a better estimate of spermatozoal metabolic activity than the pH change.—*Brit. Vet. J.*, 107, 1951: 435-437.

Influence of Thyroid Status on Spermatogenesis

The effects of the administration of thyroxine and thiouracil for long periods on the process of spermatogenesis and the development of the interstitial cells of the testes in the rabbit and the ram, under natural environmental conditions, were studied. Libido and semen qualities of the control and treated animals were also estimated, with a view to examining the possibilities of the practical application of thyroxine therapy in the field of reproduction.

Administration of L-thyroxine, in physiological doses, to 4-week-old male rabbits for forty weeks stimulated the process of spermatogenesis and the development of the interstitial cells when compared with the control group.

The treated animals showed considerable increase in libido and improvement in semen qualities when compared with those of the control group. Feeding of thiouracil as 0.1 per cent of the ration to 4-week-old male rabbits for forty weeks resulted in marked atrophic and degenerative changes in the seminiferous tubules of the testes.

The thiouracil-treated rabbits neither showed any sexual desire nor produced an ejaculate during the experimental period.

Administration of thyroxine in optimal physiological doses to 4-week-old male rabbits for about sixteen weeks resulted in precocious sexual development as judged by the onset of libido, semen qualities, and testes histology.

On the other hand, thiouracil treatment arrested the onset of sexual maturity.

Administration of thyroxine and thiouracil to young rams for one year produced practically the same effects on the process of spermatogenesis and the development of the interstitial cells of the testes as those described above for the thyroxine and thiouracil-treated rabbits, respectively. In the case of the thiouracil-fed rams, the degree of degenerative changes varied with the duration of the treatment period. A limited degree of spermatogenesis was observed in the young ram during the non-breeding season. It was interesting to find that the administration of thyroxine during the non-breeding period stimulated the process of spermatogenesis in the young

ram. Thyroxine therapy also stimulated the process of spermatogenesis in the testes of infertile rabbits which, before the treatment, showed arrested spermatogenesis.

The mechanism whereby the thyroid gland influences the process of spermatogenesis probably involves a complex series of interactions.— *Science*, Dec. 28, 1951: 693-694.

Newborn Pigs Need Heat Lamps in Temperatures Below 45 F.

Baby pigs born when the temperature is below 45 F. need direct supplemental heat during the first few hours to keep them from chilling. Installation of a heat lamp in one corner of the farrowing pen is not enough.

Coöperative research conducted by scientists of the Purdue University Agricultural Experiment Station and the U.S. Department of Agriculture shows that in the first few hours after birth pigs make no attempt to seek the warmest spot in the pen. To avoid chilling and consequent death loss, the heat source must be directed on the pigs as they are farrowed.

The studies indicate it is best to locate the lamps so they furnish a constant supply of heat to the baby pigs from the time they are being born until they are at least 12 hours old.

The sow in farrowing will frequently lie down in the center of the pen, and will remain there with her young around her. In this case, a 250-watt infra-red heat lamp hung over the center of the pen about 3 feet from the floor will furnish a big enough circle of warmth to include the litter. If, however, the sow chooses some other location in the pen, the lamp or lamps must be moved or additional units must be supplied to keep heat on the baby pigs.

After the pigs are 12 hours old, the infra-red lamp may be moved to a protected corner of the farrowing pen. Pigs confined under the lamp for a short time will ordinarily recognize it as a source of heat and will spend a good part of their time in the corner. The protected corner arrangement not only keeps the young pigs warm but also reduces the likelihood of being laid on by the sow.

The experiments indicate that a baby pig's body temperature can drop as low as 65 F. (normal is 102.5 F.) and still be revived with applications of heat. It was dif-

ficult to tell if pigs with temperatures of 65 F. were dead or alive, but the use of 250-watt infra-red lamps in a warm room brought their body temperatures up to 100 F. in four hours.

Surgical Removal of Granuloma in a Filly

ERIC F. PALLISTER, D.V.M., M.S.

Guelph, Canada

On Sept. 21, 1950, a Palomino yearling filly was presented at the clinic of the Ontario Veterinary College.

Anamnesis.—The left carpus had been injured while this animal was at pasture in



Fig. 1—Left carpus of mare on Sept. 21, 1950, showing swelling of extensor surface. The mare was injured in June, 1950.

June, 1950. The primary lesion was considered to be insignificant by the owner, but within three weeks the extensor surface of the carpus began to swell. In spite of local treatment, the swelling was progressive until Sept. 21, 1950 (fig. 1, 2, and 3).

Examination of the filly upon arrival at the clinic showed a large, hard tumefaction over the anterior and lateral aspects of the left carpus, with ulceration on the lateral side. The articulation itself did not seem to be involved, but there was some mechanical interference with flexion. The filly resisted palpation of the lesion.

The growth was diagnosed as an actively infected granuloma and a guarded prognosis was given.

Dr. Pallister is professor of surgery, Ontario Veterinary College, Guelph, Canada.

Treatment.—It was decided to extirpate the pathological tissue by surgical interference. The patient was prepared for



Fig. 2 and 3—Close-up of injured left carpus of mare on September 21.

general anesthesia with chloral-magnesium sulfate solution intravenously and placed on the equine operating table with the left fore limb uppermost. The area was shaved



Fig. 4—Neoplastic mass removed from injured carpus of mare. The new growth was diagnosed as granulation tissue.

and prepared in the usual aseptic manner.

Elliptical vertical incisions were made to include the ulcerated area and an adjacent



Fig. 5 and 6—The injured left carpus of the mare three weeks after surgical intervention.

amount of skin as estimated to permit optimum closure while avoiding redundancy and excessive tension.

The lesion was fairly well encapsulated and could be separated except at a few sites of active inflammation where meticulous dissection was imperative. The neoplastic mass removed is shown in figure 4.

Number 2 chromic catgut was used for ligation of bleeders and to obliterate space. The skin edges were brought in position with interrupted vertical mattress sutures using No. 2 nonabsorbable tension suture material. Postoperatively, a hot boric acid pack was applied over the carpus and pressure was maintained by use of an Esmarch bandage.

The filly was kept in the standing position for two weeks. On the sixth day, there was slight accumulation of serous fluid. The most distal suture was removed, the serum expressed, and 10 cc. of neoprontosil injected. The remaining skin sutures were

removed on the fourteenth day and walking exercise permitted.

Figures 5 and 6 show the carpus three weeks after surgical intervention. In June, 1951, the owner reported that the filly was again being shown on the line and that the thickening over the carpus was negligible.

Histopathological Report.—The tissue of the neoplastic mass was composed of fibroblasts and collagen with small pockets of heavy neutrophil infiltration giving evidence of infection. Although some areas of extreme activity in the tumor cells were noted, there were not sufficient to warrant a diagnosis of malignancy. The new growth was diagnosed as granulation tissue (fig. 4).

Surgical Relief of Traumatic Reticulitis in the Bovine Species.—It is interesting to examine the rate of recovery following operation for traumatic reticulitis. Seventeen of the 24 cases operated on for traumatic reticulitis made complete recoveries, which is a recovery rate of 70.8 per cent.—*Canad. J. Comp. Med. and Vet. Sci.*, Nov., 1951: 269-273.

Starting Pigs Without Colostrum.—Pigs caught at birth in a sterile canvas bag and placed in an isolated environment may be raised, without benefit of colostrum, on a diet of cow's milk, fat soluble vitamins, egg yolk, and inorganic salts. The critical factor appears to be a strict isolation to prevent infection of the pigs.—*Arch. Biochem.*, 32, 1951: 449-451.

A Modern Approach to Successful Pig Production.—It is usually assumed that "diarrhea" is an indication of disease but this is not necessarily so (*Brit. Vet. J.*, Nov., 1951). Pigs that scoured for weeks on end gained weights above the average. It is clear, therefore, that this form of diarrhea is not of pathological significance. It may be due to the *ad libitum* system of feeding, which might provide a higher than normal intake of mineral salts resulting in the production of a hypertonic solution in the intestines.

Avian tuberculosis is readily transmitted from poultry to swine. It is estimated that 95 per cent of all swine tuberculosis is due to the avian type of the disease.

CLINICAL DATA

Abscesses Associated with Group E Streptococci

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ADDITIONAL REPORTS of observations of the occurrence of group E streptococci in association with pathologic conditions are warranted, inasmuch as the pathogenicity and epidemiology of these organisms are not well understood.

Within the past year, a herd of swine was brought to our attention with a history of cervical abscesses in successive lots over a three-year period. Group E streptococci were isolated from five abscesses cultured from individual animals and also from an abscess in the mammary gland of a cow pastured adjacent to the area occupied by the infected swine.

LITERATURE CITED

The first authentic report of group E Streptococcus infection in swine is that of Stafseth and Clinton in 1941.¹⁰ They reported isolating pure cultures from cervical abscesses detected during inspection following slaughter. Abscesses from only 1 animal were cultured, but a considerable number of affected swine were observed in the herd. Abscesses examined yielded a "thick, creamy pus of greenish tint." Six abscesses, approximately the size of walnuts, were found in the submaxillary and subparotid regions of the head of the carcass examined. It was suggested that carelessness in connection with hog cholera vaccination might have been responsible for these abscesses. The infection was not seen in other hogs on the premises the following year.

Hutyra and Marek⁷ summarize a report from Rumania by Starcovi, in 1898, describing an inflammatory swelling of the submaxillary and subparotid lymph glands of pigs, which was followed by suppuration. Affected animals showed debility and became emaciated. Bipolar bacilli and streptococci were found in pus from this disease, which was termed "strangles" of hogs. Under the same name, Newsom,⁸ in 1937, reported isolating in pure culture a hemolytic Streptococcus from swine

in a Colorado herd exhibiting a similar condition. Some of the animals were noted coughing and wheezing. Affected animals showed variable-sized, multiple abscesses in the throat region, which yielded a yellow to greenish, nonodorous pus. Collier¹¹ reported isolating Lancefield group E streptococci from pathological processes in swine. Brown *et al.*² appear to be the first to have isolated recognized strains of group E streptococci. Three strains isolated from milk by these workers were used by Lancefield⁹ as a basis for the establishment of group E streptococci. No specific references were made to the possible association of this group of streptococci with pathological processes in the infected cows. Coffey⁶ reported the isolation of 11 cultures belonging to this group. One of these cultures was isolated from an ax wound on the hand of a dairy worker, but the relationship to infection was unknown. The remaining cultures reported were isolated from milk of cows from four different herds. Coffey states that group E streptococci have been isolated from milk of cows whose udders were considered abnormal. This group of streptococci were also isolated from air samples collected from rural schools.⁶ This group comprised about 10 of more than 500 Streptococcus cultures isolated by extensive air sampling.

HISTORY AND GROSS PATHOLOGY

Abscesses in the neck region of swine in the herd under discussion were first observed during 1949 by the farm manager. An estimated 40 per cent of 35 pigs showed abscesses at the time of slaughter. At that time, the butcher reported these abscesses to vary in size from that of a butternut to that of a baseball, and that only one or two abscesses were observed in each affected pig. Similar abscesses were observed in the herd in 1950. An estimated 60 per cent of these 35 pigs showed abscesses at the time of slaughter. Blocks of tissue containing abscesses from 3 animals slaughtered from this group were submitted to the laboratory for diagnostic purposes. Each of these abscesses, varying in size from 3 to 5 cm., were heavily encapsulated and con-

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tained thick, viscid, yellowish green, non-odoriferous pus. On gross examination, this material contained numerous aggregated masses closely resembling the "sulfur granules" of actinomycosis. No positive evidence was found during examination of tissue surrounding the abscesses which indicated that the process was initiated in lymph nodes of the area. All three of the abscesses closely examined were located in subcutaneous fat peripheral to the major lymphatic tissue of the area.

One of us (G.H.S.) observed 5 affected animals in a group of 20, 7-month-old pigs on the same premises in 1951. These abscesses were sufficiently large to be observed easily while the pigs were free in a lot; other animals may have been affected with abscesses too small to be observed under these conditions. Abscesses observed were located in the anterior ventrocervical area or in the mandibular or maxillary areas. Affected animals appeared normal and asymptomatic in all other respects. The 1951 group were vaccinated for hog cholera (by E. J. W.) at 9 or 10 weeks of age. At this time, several animals were observed which appeared to have enlarged lymph nodes or deep abscesses in the general cervical area. Shortly after vaccination, the

caretaker noted several animals with well-developed abscesses. These pigs had been brought on the farm at 6 weeks of age from premises where no similar trouble had been observed. Although affected animals were noted soon after introduction, the infection appeared to progress very slowly in the herd. Abscesses were first observed in different animals over a long period. Material for culturing, similar to that previously observed, was aspirated from abscesses of 2 living pigs in the 1951 group.

All three groups of swine in which cervical abscesses were observed had been purchased from the same farm when approximately 6 weeks of age. No symptoms traceable to this infection had been noted by the caretaker at any time in the pigs of the three groups; neither did he observe that any animals recovered spontaneously. In each instance, a group of young pigs was placed on the premises before all the older affected group was slaughtered. Each group, although separated, was kept within a small area which left ample opportunity for possible transmission. All rations fed contained both pasteurized skimmed milk from the farm herd and raw garbage. General sanitation was poor.

A heifer pastured immediately adjacent

TABLE 1—Comparison of Physiological Characteristics of Group E Streptococci as Reported by Various Workers

Characteristic	Massachusetts	Stafseth	Newsom	Coffey	Dubos	Bergey's Manual
Sodium hippurate	—	—	—	—	—	—
Arginine	+	—	—	—	+	+
Methylene blue	—	—	—	—	—	—
0.1	—	—*	—	—	—	—
0.3	—	—*	—	—	—	—
Litmus milk	—	—	—	—	—	—
acid produced	±	—	—	—	+	—
coagulation	—	—	—	—	—	—
reduction	—	—	—	—	—	—
Gelatin	—	—	—	—	—	—
Carbohydrates	—	—	—	—	—	—
Dextrose	—	—	—	—	—	—
final pH	4.8-5.4	4.6-4.8	—	4.6-5.2	4.2-4.8	4.2-4.8
Lactose	—	—	—	+	+	+
Maltose	+	+	—	+	+	+
Sucrose	+	+	—	+(V)	+(V)	+(V)
Levulose	+	+	+	—	—	—
Galactose	—	+	—	—	—	—
Mannose	—	+(V)	—	—	—	—
Arabinose	—	—	—	—	—	—
Rhamnose	—	—	—	—	—	—
Xylose	—	—	—	—	—	—
Trehalose	+	+	—	+	+	+
Raffinose	—	—	—	—	—	—
Mannitol	+	+(S)	+	+(V)	+(V)	+(V)
Dulcitol	—	—	—	—	—	—
Sorbitol	+(S)	+(V)	+	+	+	+
Inositol	—	—	—	—	—	—
Glycerol	—	—	—	—	—	—
Salicin	—	+(V)	—	+(V)	+(V)	+(V)
Inulin	—	—	—	—	—	—
Dextrin	+	—	+	—	—	—
Starch	+	+	—	—	—	—
Esculin	+	+	—	—	+(V)	+(V)

*Very slight reduction in milk; no change in broth. (S) = Reaction appearing only after forty-eight or ninety-six hours. (V) = Acid may or may not be produced; variable.

to the hoglot during the summer of 1950 was observed during April, 1951, with multiple, large, mammary abscesses. The contents of one abscess were partially aspirated for cultural purposes. Lancefield group E streptococci and staphylococci were isolated. Milk samples were not taken at that time, and it is not known whether group E streptococci were being shed in the gland secretion. Available information showed this heifer to have calved Feb. 10, 1951. Quarter milk samples from this animal were tested in February and March. Group E streptococci were not isolated. Following the April isolation, the cow was treated by mammary infusion for acute mastitis. Quarter samples taken in May again failed to show group E streptococci.

BACTERIOLOGICAL STUDIES

Direct smears of pus from the pig abscesses were stained with Gram's, Ziehl Neelsen, and methylene blue stains. A few gram-positive cocci were seen, but no evidence of fungi or of other organisms was found. The organisms isolated from exudate from all lesions cultured showed markedly similar morphological, cultural, and physiological characteristics. They all were identified serologically as belonging to Lancefield's group E.

Morphological Characteristics.—The cells were typically spherical, ranging from 0.8 to 1.0 μ in diameter with many pleomorphic forms in cultures from solid mediums. Cells from blood agar, nutrient agar, and chicken infusion agar plates varied in form from spherical or ovoid to diphtheroid-like. Cells from these mediums showed a variable reaction with the gram stain, with many cells being decolorized; they occurred singly, in pairs, and in short chains of not more than six to eight cells each. Cultures in brain-heart infusion broth and tryptose broth enriched with fresh serum contained typical streptococcal forms in chains of ten to 20 cells. Cells from these cultures were uniformly gram positive. Young cultures grown directly from the exudate in these enriched mediums exhibited capsule formation. All cultures were nonmotile.

Cultural and Physiological Characteristics.—Colonies on blood agar were small (1 mm. in diameter), discrete, and translucent in twenty-four to forty-eight hours but became somewhat opaque with age. All cultures were *beta*-hemolytic. Growth in tryptose broth was uniformly turbid with a small amount of flocculent sediment, but the liquid remained turbid. Cultures were aerobic or facultatively anaerobic.

Cultures did not liquefy gelatin or hydrolyze sodium hippurate; arginine was split. Litmus milk was very slightly acid, but showed no reduction or coagulation. A final pH range of 4.8

to 5.4 was produced in 1 per cent dextrose broth by the different cultures isolated. All cultures produced acid from dextrose, maltose, sucrose, levulose, trehalose, mannitol, sorbitol (48 hours to 7 days), dextrin, and esculin. No acid was produced from lactose, galactose, arabinose, rhamnose, xylose, raffinose, dulcitol, inositol, glycerol, or salicin. Starch was not hydrolyzed.

All cultures showed an insignificant reduction of 0.1 per cent methylene blue in milk, but no coagulation. There was no change in milk containing 0.3 per cent methylene blue.

All cultures were found to be completely inhibited by the concentration (0.0025 per cent) of brom thymol blue routinely used by this laboratory as an indicator in carbohydrate fermentation broth. Tryptose broth, used as a base for these mediums, supported good growth without an indicator; definite fermentation reactions were obtained when an indicator was added after incubation. Readings for carbohydrate fermentation were taken after forty-eight hours and seven days. The observation of inhibition of growth by this dilution⁶ of dye in the carbohydrate mediums suggested the possibility that the dye solution used routinely in the mastitis laboratory for milk samples might also be inhibitory for these organisms. Tubes of tryptose dextrose broth containing the same concentration (0.002 per cent) of brom cresol purple as that used for the milk samples collected were inoculated with the *Streptococcus* cultures. Turbidity and acid formation were noted in each tube; control tubes remained unchanged.

Table 1 is a comparative summary of the physiological characteristics of the isolations reported as well as those given by Stafseth,¹⁰ Newsum,⁹ and Coffey.¹ It also includes characteristics of group E streptococci as given by Dubos⁵ and Bergey's Manual of Determinative Bacteriology.¹

Serological Classification.^{10,11}—All the five cultures isolated from lesions in the pigs as well as from the bovine mammary abscess described were typed as giving serological reactions of group E. The culture from the first animal examined was not viable when the method giving satisfactory reactions for carbohydrate fermentation was used. This culture appeared, however, to be identical morphologically and culturally with those later isolated and was among the cultures typed by Dr. Updyke as group E.

DISCUSSION

Lancefield group E streptococci were isolated from an abscessed mammary gland of a cow that had had previous contact with pigs showing cervical abscesses from which this group was isolated. No proof of trans-

⁶Clark³ recommended 0.04 per cent of brom thymol blue for routine use as a pH indicator in carbohydrate mediums.

^{10,11}We are indebted to Dr. Rebecca C. Lancefield, Hospital of the Rockefeller Institute for Medical Research, New York, N. Y., and to Dr. Elaine L. Updyke, Streptococcus Laboratory, Communicable Disease Center, Chamblee, Ga., for the serological identification of these cultures.

mission between species could be secured, although circumstantial evidence suggested this to be the case. The fact that the organism was not isolated from milk samples between the time of possible contact and the formation of visible mammary abscesses can not be regarded as evidence of absence of infection; it is not known whether the organism was shed in the gland secretion at any time or whether abscesses were produced by this serological group of streptococci, because staphylococci were also isolated from the lesion.

Evidence was secured of transmission of group E streptococci between different age groups of swine over a three-year period. It does not seem likely that hog cholera vaccination was an important factor in producing these abscesses as they appeared to be developing in some of the animals at the time of vaccination. At that time, the process appeared to be associated with the lymph glands of the area; although this did not appear to be true when the abscesses were more fully developed, it is likely that all involved lymphoid tissue had been destroyed by that time if the process actually was initiated in this tissue.

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Antibiotics in Clinical Pneumonia

A trial of aureomycin and chloramphenicol in clinical pneumonia in human beings is reported in the *British Medical Journal* (Dec. 8, 1951; 1361-1365).

Cases diagnosed as pneumonia on admission were allotted at random to one of three treatment groups: (1) aureomycin; (2) chloramphenicol; and (3) "standard treatment." Most of those in the last group were treated with penicillin, a few with sulfonamides.

There were 267 cases in the series. The treatment groups were found to be comparable, and the results of treatment were similar in each group.

Analysis of the patients who were desperately ill on admission, and of the deaths, suggests that penicillin was at least as valuable as the other two antibiotics.

Symptoms of drug toxicity were much commoner with aureomycin and chloramphenicol than with penicillin.

As compared with penicillin, treatment with aureomycin was more than ten times as expensive and with chloramphenicol more than nine times.

In a choice between aureomycin, chloramphenicol, and penicillin, it is suggested that penicillin by injection is the best treatment for clinical pneumonia. But in this recommendation no account is taken of the possible value of the sulfonamides, which were not compared with the other drugs in this trial.

Canine Actinomycosis

An organism considered to belong to the family Actinomycetaceae was isolated from the lesions in a 3-month-old dog with generalized actinomycosis. There were lesions in the liver, spleen, epicardium, kidneys, tracheobronchial lymph nodes and lateral ventricles.—*Rev. méd. vét.*, 100, (1949): 138.

Studies on Swine Brucellosis. II. Control in Farm Herds

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SWINE BRUCELLOSIS control is one of the most urgent problems in Iowa, since this disease is not only a serious economic factor in swine production, but also the most common source of human brucellosis. Within the comparatively short time that swine brucellosis has been recognized, considerable progress has been made in developing an understanding of the pathogenesis of the disease. The various workers most interested in this problem — Hutchings of Indiana,^{1,2} Cameron in California,^{4,7} Kernkamp in Minnesota,⁸ and McNutt in Iowa⁹ — have also had a rather extensive background of experience in the control of the disease. Much of the earlier control work was done in institutional and other special herds, where methods not practical on the ordinary farm were often used. However, when this project was undertaken in 1947, it appeared that sufficient information had been obtained so that those principles found useful could be applied to average farm herds under normal farm conditions.

The series of investigations partly described here were planned to test whether control of swine brucellosis under practical farm conditions was possible. If successful, these herds might act as "pilot herds" in the development of a larger control program. The experience gained in these "pilot herds" did lead to the formulation of the official "Iowa Certified Brucellosis-Controlled Swine Herd Program" in the fall of 1949. It is thought that the relating of some of our early experiences in this work may be of aid to others attempting programs of swine brucellosis control.

EXPERIMENTAL PROCEDURE

Since the degree of success of a disease control program may well be determined by its cost, the first concern was to set up procedures which, within effective disease control limits, would require a

minimum of cost and inconvenience to the farmer and his swine herd. A thorough understanding of the disease problem in each herd and the progress of control procedures could be obtained only by intensive studies in each of the herds. It was, therefore, the aim of the field collaborator to accomplish the usual control procedures on the farm and at the same time, without influencing the basic control plan, to utilize as many laboratory and other resources as possible to supplement the information in each herd.

In each new herd, the field collaborator first procured and considered carefully the herd history concerning swine brucellosis and other diseases, the breeding practices, number of animals, value of blood lines, equipment (housing and pasture), and the other factors making up swine husbandry on that particular farm. On the basis of these findings and with consideration of the farmer's wishes, the most practicable plan was adopted. The research objectives were implemented by frequent visits to each farm with personal examination of the herd and records. All material which was thought to have value in laboratory studies such as fetuses, placentas, baby pigs, testicles, and post-mortem tissues were collected and transported immediately to the laboratory for examination. These procedures interfered little with the handling of the herd but did give concrete laboratory backing to the field program and proved helpful in clarifying each individual herd situation.

INFECTED HERDS

To form a basis of discussion, six infected herd histories are presented in brief, since it is thought that these herds demonstrate some of the common problems found in farm herds. It will be noted that in the handling of farm herds, factors are often present which preclude the most efficient use of the available knowledge of disease control. The farmer's wishes must be considered, and often allowances and compromises which do not seriously impair the program can be made. At all times, we have made it policy to repeatedly advise the farmer of the personal hazards involved, especially if any animals from an infected herd are retained.

Herd 1.—When first seen, this herd was composed of 28 sows. Three boars used in this herd and 2 sows which had aborted prior to this time had been sold and so

This project was started in cooperation with the Tuberculosis Eradication Division, Bureau of Animal Industry, Agricultural Research Administration, U. S. Department of Agriculture, which supported the activities of Dr. Hubbard in connection with this project in 1947 and 1948. Since that time, Dr. Hubbard has been field collaborator, Veterinary Research Institute, Iowa State College, stationed at Grinnell, Iowa. Dr. Hoerlein is associate professor of veterinary research, Veterinary Research Institute, Iowa State College, Ames.

could not be tested. The remaining 28 sows were tested by the serum-agglutination test following farrowing or aborting (table-1). Only 1 was negative 1:25, though *Brucella suis* was isolated from her blood. She farrowed and raised 7 pigs. Sixteen of the sows which did not abort were rebred. Six farrowed and raised normal litters. One farrowed a weak litter which died in twenty-four hours, but she was able to raise

a litter adopted from another sow having insufficient milk.

In this herd, the retention and rebreeding of the 16 sows which had not aborted was unprofitable. Repeated emphatic warning of the danger of human brucellosis had been especially discounted by one of the owners of this herd. However, as is the case in many herds with brucellosis, the most serious loss was suffered when the

TABLE 1—Agglutination Test Results on Herds Studied

Herd (No.)	Months since last test	Number tested	Agglutination test results		
			Negative	Pos. 1:25	Pos. 1:50
1		28	1 (4%)	2 (7%)	4 (14%)
2		22	18 (82%)	2 (9%)	1 (5%)
	1/2	17	15 (88%)	1 (6%)	1 (6%)
3		19	2 (11%)		3 (16%)
4		35		3 (9%)	7 (20%)
	10	30	22 (73%)	8 (27%)	
	1	29	24 (83%)	4 (14%)	
	1	31	30 (97%)	1 (3%)	1 (3%)
	3	25	24 (96%)	1 (4%)	
5		65	54 (83%)	1 (2%)	3 (5%)
	15	31	12 (39%)	4 (13%)	3 (10%)
	3	33	23 (70%)	2 (6%)	3 (9%)
	1/2	26	19 (73%)	1 (4%)	4 (15%)
	1/2	19	14 (74%)	3 (16%)	1 (5%)
6		13	6 (46%)	3 (24%)	3 (24%)
	24	6	6 (100%)		
	3	17	17 (100%)		
7		9	9 (100%)		
	6	35	31 (92%)	3 (6%)	1 (3%)
	2	22	20 (91%)	2 (9%)	
8		68	61 (87%)	5 (11%)	1 (2%)
	11/2	70	69 (99%)	1 (1%)	
9		45	38 (84%)	6 (13%)	1 (2%)
	11/4	52	28 (88%)	3 (9%)	1 (3%)
10		29	25 (86%)	4 (14%)	
	11/4	27	26 (96%)	1 (4%)	
11		59	19 (107%)		
	26	24	19 (79%)	4 (17%)	1 (4%)
	1	21	19 (91%)	2 (10%)	
12		34	34 (100%)		
	6	15	14 (93%)	1 (7%)	
	1	18	17 (94%)	1 (6%)	
13		12	11 (92%)	1 (8%)	
	4	26	26 (100%)		
	26	11	11 (100%)		
	1	11	8 (73%)	3 (27%)	
14		42	33 (79%)	8 (19%)	
	2	41	34 (81%)	7 (20%)	1 (2%)
15		9	9 (100%)		
16		71	54 (88%)	5 (7%)	13 (18%)
	Next	103	98 (95%)	3 (3%)	1 (1%)
	Next	261	260 (100%)	1 (0%)	
	Next	165	155 (94%)	9 (6%)	1 (1%)
	Next	196	146 (75%)	37 (19%)	9 (5%)
	Next	141	134 (95%)	5 (4%)	2 (1%)
17		78	41 (53%)	5 (6%)	13 (17%)
	6	200	157 (79%)	14 (7%)	8 (4%)
	20	0			
	14**	671	402 (60%)	141 (21%)	70 (10%)
	4††	231	190 (89%)	18 (8%)	5 (2%)
18		14	10 (72%)	3 (21%)	1 (7%)
	7	27	27 (100%)		
	4	20	18 (90%)	2 (10%)	
19		13	2 (15%)	2 (15%)	2 (15%)
	7	13	11 (85%)		
	7	25	25 (100%)		
20		11	9 (82%)	1 (9%)	
	1	41	38 (93%)	3 (7%)	
21		20	17 (85%)	2 (10%)	
	4	24	21 (87%)	1 (4%)	1 (4%)

*Positive 1:103 and higher; **no control measures being used; ††on isolated herd after control measures put into practice.

other partner contracted the disease. In spite of the most modern treatment, he was able to do only the lightest work after two years and was forced to discontinue large farming operation and move to a smaller, less productive farm.

Herd 2.—This was an unregistered pure-bred herd that had been maintained for thirty years with no history of brucellosis. A boar purchased from herd 1 was used to breed a pen of gilts. When the infection was found in herd 1, the owner of herd 2 was warned of the danger; the boar was tested and was found to have an agglutination titer of 1:800. *Brucella suis* was isolated by guinea pig inoculation from pus taken from an abscess on the boar's neck, but on castration, the testicles were negative bacteriologically. The gilts bred by this boar were soon showing clinical evidence of brucellosis such as returning in estrus at irregular periods and abortions. They were sold for slaughter.

A second boar was purchased from another source but had a positive agglutination titer of 1:400 when tested. The test charts were mailed to the owner, assuming he would be able to interpret the results. However, when the owner of herd 2 was visited, it was found that he had considered the test negative and had used the new boar on 8 sows. This group of sows had not contacted the previously described infected gilts or the first infected boar and up to this time had no clinical evidence of brucellosis. Following the use of the second boar, only four litters were produced from the 8 sows. The 4 sows farrowing were tested at that time and 1 was negative 1:25, 2 positive 1:25, and 1 positive 1:100.

A third group of 22 gilts was tested; 18 were negative, 2 positive 1:25, 1 positive 1:50, and 1 positive 1:100. These gilts were from a previous farrowing but, as little pigs, ran with the first group of gilts bred to boar 1. Seventeen of the negative gilts were retested in two weeks and 15 were negative 1:25, 1 positive 1:25, and 1 positive 1:50. One of the positive gilts showed evidence of having aborted.

The spread from infected boars was definitely demonstrated in this herd. Test and removal of reactors from an infected group of gilts was not successful. The experience with the test charts emphasized the fact that one must exercise care to make sure that the owner of a herd under-

stands exactly what is expected of him in following any recommendations made.

Herd 3.—This herd has a history of abortions starting in the spring of 1947 (table 2). After each season, the gilts were sold and new stock bought. In the spring of 1949, the 18 gilts bought were part of a group belonging to a brother-in-

TABLE 2—Farrowing History of Herd 3

Year—Season	Gilts bred	Gilts farrowing	
		(No.)	(%)
1947 Spring	20	17	85
1947 Fall	10	5	50
1948 Spring	11	7	64
1948 Fall	10	7	70
1949 Spring	18	11	61
1949 Fall	11	6	55

law, who retained 20 gilts for his own pig crop. When the brother-in-law became ill, the owner of herd 3 cared for both groups of gilts almost to farrowing time. There was no clinical evidence of brucellosis in the brother-in-law's 20 gilts, and they raised 8.25 pigs per litter. The same boar was used to breed both groups, herd 3 first. This boar was also used to rebreed the first 2 gilts aborting in herd 3. At that time, the boar had an agglutination titer of partial 1:50 and *Br. suis* was found by hemoculture. Bacteriologic studies of the testicles were negative. The 18 gilts were tested and 2 were negative 1:25, 2 positive 1:50, 6 positive 1:100, 6 positive 1:200, and 2 were positive 1:400. *Brucella suis* was isolated by hemoculture from 6 animals. The 11 gilts that raised litters in the spring of 1949 were rebred for litters in the fall of 1949, using a negative boar. Only 6 (55%) of the 11 sows raised litters in the fall of 1949.

It is possible that a common source of contamination was present, since new animals were bought in preparation for each farrowing. They were, however, never tested and other points of the history are in question. Again, it is noted that the rebreeding of the gilts which raised litters was unsatisfactory.

Herd 4.—Herd 4 had never shown clinical evidence of brucellosis prior to the spring of 1949. After the owner thought all the sows were bred, he noticed signs of estrus. Those sows were marked and eventually 20 were in this group. The owner never observed any aborted fetuses.

When the herd was tested, 3 were positive 1:25, 7 positive 1:50, 3 positive 1:100, 11 positive 1:200, 7 positive 1:400, 1 positive 1:800, and 2 positive 1:1,600. The boar was positive 1:400. His testicles were negative for *Brucella*. The entire herd was sold and a new herd purchased and tested as noted in table 2. No clinical evidence of brucellosis has occurred to date in the new herd.

Herd 5.— This herd was owned by two brothers. Abortions occurred in that portion of the herd cared for by one of the brothers who also contracted brucellosis. A test of the entire herd revealed 11 reactors, which when checked were all originally in the sick brother's herd. After many abortions in the herd, it was sold and a new herd purchased without test. Again many abortions occurred. The boar was positive 1:100 and of the 30 gilts tested only 12 were negative 1:25 while 10 were positive 1:400 *Brucella melitensis* was isolated from hemocultures. The 30 gilts raised 72 pigs.

Seven months later, 33 young gilts from the above farrowing were tested and a number were positive. As noted in table 2, the repeated testing and removal of the reactors from these young gilts was unsatisfactory. After three tests during four weeks, only 14 of the original 33 gilts remained, so that it was decided to sell the entire group and purchase new gilts for the next pig crop. There has been no more trouble in this herd.

Herd 6.— Herd 6 had not shown clinical evidence of brucellosis. The owner was ill and his condition was diagnosed as *Br. melitensis* infection. Pathological specimens were obtained from the abattoir when 4 sows from this herd were slaughtered. Three had an agglutination titer positive 1:50 and the other was positive 1:400. *Brucella melitensis* was isolated from a cervical abscess from 1 of these sows. The herd was sold and new stock purchased. Two subsequent tests were negative as shown in table 2.

DISCUSSION

Herds 1 through 5 are examples of herds with definite histories of clinical brucellosis. Herd 6 is an unusual type of herd and is described only for that reason.

Herds 7 through 14 (table 2) are herds in which there was no clinical evidence of

brucellosis prior to the first test or since. Many animals in these uninfected herds had positive agglutination titers of 1:25 and 1:50 and 1 positive 1:100. It is interesting to note that in the comparison of the first test in this group and the first test of the group of infected herds (table 3), there is

TABLE 3—Agglutination Test Results. First Tests in Infected and Noninfected Herds

	Swine tested		Swine positive			
	negative		1:25	1:50	1:100	
5 Infected herds	175	77 (44%)	10 (6%)	18 (10%)	70 (40%)	
9 Noninfected herds	287	239 (90%)	24 (8%)	3 (1%)	1 (.3%)	

a marked difference in the distribution of the agglutination titers. In the infected herds, the greater percentage of titers is in the higher dilutions, while in the uninfected herds, most of the positive reactions are in the 1:25 dilution. We do not believe, however, that a single test is sufficient to determine the absence of infection in a herd.

Herd 15 is included to warn against the pitfall of diagnosing swine brucellosis by clinical evidence alone. Seven of the 9 sows in this herd aborted, but *Brucella* sp. could not be isolated from the 17 aborted fetuses which were examined in the laboratory.

The serum-agglutination tube test has been used in all of this work and is obviously the backbone of all the control procedures. Used with a recognition of its limitations, this test has proved entirely satisfactory in our hands. A herd has been considered free of brucellosis if on two consecutive tests of the entire herd at least thirty days apart, no animal reacts positive 1:100 or higher. All animals in infected herds with any agglutination titer (1:25 or higher) are regarded as infected, and even those animals in these herds with negative titers are handled as infected.

The other laboratory examinations made in connection with these studies have been valuable in adding to the understanding of certain phases of the control procedures. Hemocultures procured when bleeding for the agglutination test have been successful in isolating the causative strain of *Brucella* from a number of herds. Five to 10 ml. of blood drawn aseptically with a sterile needle and syringe are ejected into 70 ml. of tryptose broth in a rubber diaphragm

stoppered bottle and incubated at 37 C. to be subcultured at weekly intervals. Even under field conditions, the rate of contamination of these cultures need not be high. *Brucella suis* has been isolated from the testicles of castrated reacting boars in some herds. Pus from unopened abscesses has yielded *Brucella* sp. on several occasions, often only by guinea pig inoculation.

During the first year and a half of these studies, all of the fetuses and dead baby pigs available from five infected (and numerous suspicious but now known to be clean) herds were examined in the laboratory both by direct culture and guinea pig inoculation. In one infected herd, one litter was positive and no more were cultured. Two out of three litters examined in another herd were infected. In the third herd, pigs from one out of four litters examined were positive bacteriologically. In two known infected herds, however, 113 pigs were examined out of 49 litters without finding evidence of brucellosis. Fetuses from early abortions have not been obtained from farm herds.

CONTROL PROCEDURES

In general, the control procedures were in line with the collected experience in swine brucellosis control. In each herd, the best sanitary measures practicable on that farm were instituted.

Plan I. — The entire infected herd was marketed and replaced with clean breeding stock. Brucellosis was controlled in herds 4, 5, and 6 by use of this plan. Herds 1 and 2 were handled by this plan, but insufficient time has elapsed to be sure of the results. This plan is undoubtedly the most practical way to control swine brucellosis in commercial herds.

Plan II. — This plan is useful in purebred herds where the owner is desirous of saving valuable blood lines. The value of the hogs should be sufficiently high to warrant the additional work, expense, and hazards involved. This plan may be started at any time in the farrowing cycle, but one usually sees these herds when they are having trouble, sows coming back in estrus and abortions. If the herd is heavily infected, it may not be practicable to remove all the pregnant sows positive to the agglutination test, so they are allowed to farrow. The baby pigs are weaned at 8 weeks or younger and removed to clean pasture to

be isolated by strict segregation from the old infected herd. The old herd is disposed of as soon as possible. The young isolated gilts are tested before breeding, and only those negative 1:25 bred to clean boars. These gilts are farrowed in individual pens and held till tested after farrowing. Those gilts negative to the agglutination test and their litters are handled separately in isolation from the rest of the herd. The pigs from the negative sows, after weaning at 56 days, become the basis of the new clean herd. This cycle may be repeated if not successful in ridding the herd of residual infection.

Brucellosis was controlled in herd 16 with plan II. Herd 17 is apparently clean and is being handled under this plan, but sufficient time has not elapsed to know the final results.

Plan III. — Where only a few reactors are found in small herds or where the hogs are kept in separate groups and one or more of the groups are apparently free of the infection, only the reactors (or the infected groups) are sold. The remainder are retested every thirty days until no reactors are found on two consecutive tests. If the herd is not readily freed of the infection by this means, a change to one of the other control plans is advised.

This plan is worthy of trial in small commercial herds with a low number of positive animals. All animals reacting 1:25 or higher must be considered as infected. Brucellosis was controlled in herds 2, 18, 19, 20, and 21 by use of plan III. While we have been unable to obtain additional tests on herd 21, there has been no clinical evidence of the disease in the herd since the last test.

SUMMARY

The investigations in a group of average farm herds using relatively simple, inexpensive swine brucellosis control procedures are discussed. The results in these "pilot" herds demonstrate that swine brucellosis can be readily controlled in the farm herd by the application of our present knowledge of the disease.

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Lymphosarcoma in a Cow

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In May, 1950, the writer was called in consultation on a herd involving an extensive outbreak of mastitis. One animal, cow 4, a 9-year-old Holstein-Friesian, showed clinical symptoms similar to leukemia.

All superficial lymph glands were swollen. The animal was otherwise in fair condition and was still in the milk string. The dairyman, however, reported that her appetite was impaired. Her temperature was 101.6 F., respiration, 22. There were no unusual heart sounds, but at irregular intervals she exhibited symptoms of dyspnea. She was isolated from the herd and given the intradermal and mucodermal test for tuberculosis with negative results (5-5 and 8-50).

Stabs under aseptic conditions were made into the mammary and precrural lymph nodes or glands and cultures made in broth from each. These were taken to the laboratory, and the report follows:

Cow 4 (Lab. No. 46056).—Both cultures show gram-positive cocci in clumps and chains resembling streptococci and staphylococci bacilli. Negative for *Brucella abortus*—5-11-50.

Dr. Derflinger, Salem, Ore., is acting in the capacity of assistant state veterinarian.

In the meantime, the patient ate very little, mincing at her grain and hay. She was started on large doses of penicillin intramuscularly. This was continued for about five days without any change in her condition. She was then put on sulfanilamide, 600 Gm. daily. A 20 per cent reduction in dosage was made every third day for nine days.

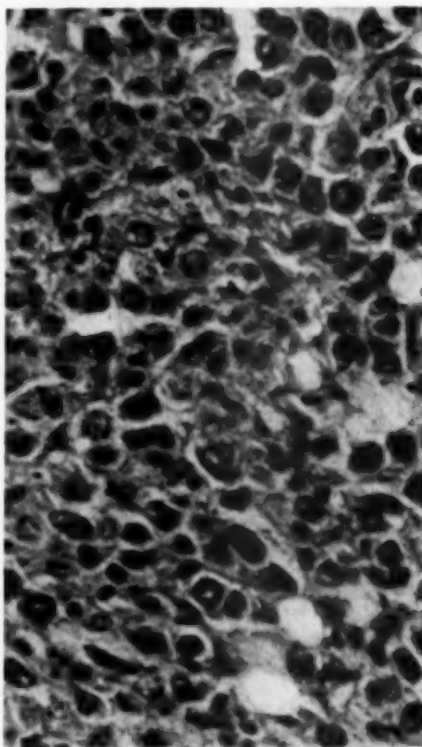


Fig. 1.—Photomicrograph of the lymph node of the Holstein-Friesian Cow.

The cow's appetite returned and she appeared normal, except that the occasional difficult breathing spells continued.

Her general condition remained as stated above. The glandular swelling did not recede and the occasional dyspnea did not subside. The mastitis had cleared up. On June 1, the animal was slaughtered and autopsied. Enlargement of the spleen was not macroscopically perceptible but all lymph glands were eight to ten times larger

than normal. The mediastinal lymph glands so filled the thoracic cavity that each lung lobe was crowded so tightly against the thoracic walls as to render the cause of dyspnea evident. The liver was also involved. Its weight was 39 lb. as compared with a normal average weight of 10 to 12 lb. The mastitic condition did not show on postmortem examination.

On May 20, a biopsy was performed on the left submaxillary lymph gland which was greatly enlarged. The gross pathological examination report from the laboratory follows:

The specimen is in several parts, apparently consisting of fat and portions of a lymph node. One of the largest pieces measures 2.5 cm. in diameter. The firmer, yellowish gray portions apparently representing the node, are sectioned, and the surfaces appear light yellow in color, almost suggesting modified fat. However, there are occasional areas which are somewhat firmer, and they have a fine yellow, stippled appearance. Almost all of these pieces are taken for micro-study. Microsections of the lymph nodes show very little histologic resemblance to the normal counterpart in the human being. This is largely due to complete obliteration of the follicles, and replacement by closely arranged cells which lack a definite pattern. Occasional foci of necrosis are scattered throughout the node. When the large cells replacing this structure are carefully examined, it is found that the nuclei vary moderately in size and shape, and many of them contain nucleoli. Mitotic figures are extremely numerous. A few wandering cells, largely consisting of polymorphonuclear neutrophils, are found throughout the tumor, but eosinophiles are extremely rare. I am unable to find Dorothy Reed Sternberg cells, as would be expected in Hodgkin's disease.

Comment.—In my opinion, these changes represent a lymphosarcoma, probably of the reticulum-cell type. At least the microscopic changes are quite similar to the same tumor encountered in the human being. For this reason, it seems evident that this animal is not contagious and probably is not suffering from the same disease as the other cattle.

Diagnosis.—Lymphosarcoma of the reticulum-cell type.

The picture conforms to the description given in "Keeping Livestock Healthy," (1942:548), captioned "Lympho cytoma, Lymphatic Leukemia and Pseudo Leukemia." What was the etiological factor in this case of the Holstein-Friesian? It seems to me that some form of irritation lies at the bottom of most sarcomas, but the source of these irritations seems indefinite. I would welcome comments.

Hyaluronidase in Large Animal Therapy

In 1929 Duran-Reynals described the properties of a substance containing a "spreading factor." This factor is described as an enzyme, hyaluronidase, that has the ability to greatly increase the penetration of various substances within body tissues. Hyaluronidase hydrolyzes hyaluronic acid, a viscous polysaccharide found in the interstitial spaces of tissue, where it normally obstructs the diffusion of invasive substances. It was found that the rate of diffusion of injected solutions is proportionate to the amount of enzyme, and the extent of diffusion is proportionate to the volume of the solution.

Used in therapeutic or even much larger doses, it is nontoxic. Because of this ability to break down hyaluronic acid and allow a rapid and widespread diffusion of injected solutions through the tissues, hyaluronidase has been advocated or suggested for use in many therapeutic procedures.

Hyaluronidase is present in testicular extracts, semen, snake and bee venom, leeches, and some strains of hemolytic streptococci.

The clinical use of hyaluronidase in large animal surgery and medicine is probably more limited than it is in human and small animal therapeutics because of the relatively large amounts needed and thus the greater cost of the product.

The enzyme, combined with udder infusions, caused no observable reaction in normal or diseased bovine udders and did not improve the results of treatment of acute or chronic mastitis.

Hyaluronidase increased the rate of diffusion of calcium gluconate solutions injected simultaneously in the bovine species but did not increase the rate of absorption. It did not reduce the irritating effect of chloral hydrate, magnesium sulfate solutions injected subcutaneously; in fact, it increased the size of the resulting swollen, inflamed area.

Hyaluronidase may be used advantageously in large animal therapy in deep nerve block and in deep infiltrating local anesthesia. It is of questionable value in superficial or subcutaneous anesthesia, and for nerve block anesthesia where the nerves are readily located.—*Cornell Vet.*, Oct., 1951: 321-331.

Possible Effects of German Wood Preservative on Cats and Dogs, With Special Reference to Hyperkeratosis

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IN A PREVIOUS article (J.A.V.M.A., Aug., 1951: 133-137), I reported on the occurrence of hyperkeratosis of cattle, showing that this disease was caused in Germany by one batch of a certain wood preservative. During the actual outbreak of the disease, which involved ten farms for about two years and caused about 150 death losses among the cattle, the farmers had observed that not only the cattle but also their cats had contracted the disease. Without giving a detailed description, the farmers reported that the cats on their farms apparently suffered too and usually died, as long as the thus-far unknown disease troubled the cattle. Although not much attention had been paid to this observation during the actual occurrence and the later investigations of the disease, the accuracy of this observation as to the specific cause of the cats' disease could be confirmed by the following unintentional experiment carried out in the Department of Hygiene, Veterinary College of Hannover.

Before the decisive experiment with cattle as described in the JOURNAL (August, 1951) could be carried out, attempts were made to produce the disease in rabbits. For this purpose, 2 rabbits were kept in a wooden box (about $2\frac{1}{2}$ by $1\frac{1}{2}$ by $1\frac{1}{2}$ ft.) which had been painted inside and out with the incriminated wood preservative. When the rabbits had shown no symptoms of any disease during eight weeks, the experiment was discontinued and the box was placed outdoors.

Effect of Wood Preservative on Cats.—About six weeks later, the box was again (without thinking of its previous utilization) used as a shelter for a cat in a fenced pen. The opening in the front of the box permitted the cat to move in or out as she wished. Eight days later, the cat gave birth to 5 kittens. During the next four weeks, the mother cat stayed inside the box nursing her kittens most of the time. When

the cat family showed up more often outside their shelter, the following symptoms were observed: The mother cat had lost the hair on both sides of the body in an unusual manner as shown in fig. 1. No itching or rubbing was observed in the cat. The kittens had developed a conjunctivitis which had induced a crusty proliferation on the eyelids. The same lesions could be seen near the nostrils (fig. 2).

Unfortunately, the cat family escaped from their confinement for some unexpected reasons so that no further observations on their disease could be made. But as this occurred between 250 and 300 days after the box had been painted with the wood preservative, which meanwhile had been proved to be the cause of hyperkeratosis in cattle, I am inclined to connect the cat dis-

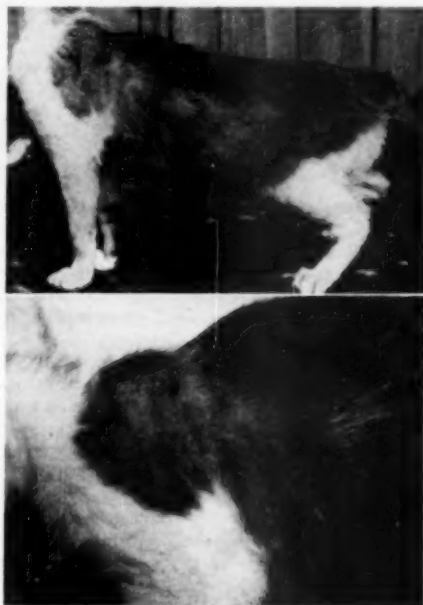


Fig. 1—Hair loss in the mother cat fifty-two days after exposure.

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ease with the wood preservative in agreement with the above-mentioned observations on the affected German farms, where the long-lasting, noxious potency of the causative agent also had become evident.

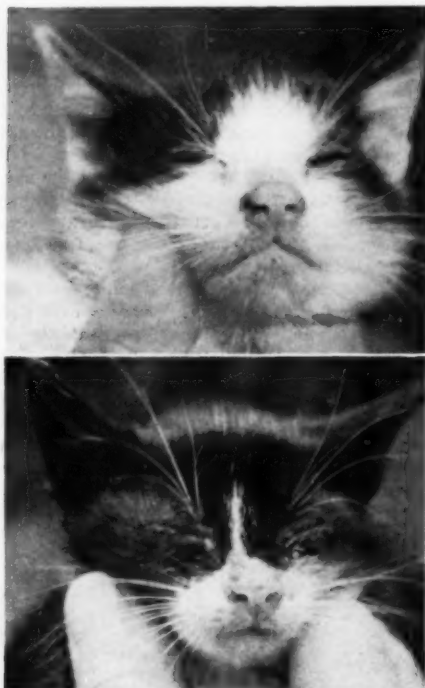


Fig. 2—Two kittens forty-four days after exposure.

These deductions seem to be justified inasmuch as they are in accord with further experiments in dogs, showing the noxious influence of the same wood preservative to this species of animals also.

Effect of Wood Preservative on Dogs.—A group of dogs selected for experiments with leptospirosis was kept outdoors in four wire-fenced enclosures. In each, three new wooden barrels were placed as shelters. The barrels in kennels 1 and 3 were painted inside and outside with the incriminated wood preservative. The barrels in kennels 2 and 4 were at the time painted with the wood preservative of the same origin but which had proved not to be noxious. The front of the barrels were open, so that the dogs could move in and out at will. In

each kennel, about the same number of dogs were lodged.

Four to six weeks after exposure, the dogs in kennels 1 and 3 developed lacrimation and a conjunctivitis of varying degrees. A pregnant bitch in kennel 1, showing severe conjunctivitis, aborted six weeks after exposure. Although this happened only about one week before full term, all puppies were dead.

As the apparently noxious influence of the wood preservative interfered with the planned experiments on leptospirosis, an exchange in the occupation of the kennels had to be undertaken after the seventh week of exposure. Kennels 3 and 4 were each occupied by 6 puppies about 10 weeks old from one litter. At the beginning of the exposure, the average weight of each group was the same. They were fed the same feed all of the time. Two weeks after exposure, the dogs in kennel 3 (containing the barrels painted with the noxious wood preservative) showed lacrimation, conjunctivitis, and increasing emaciation. The weight of this group of dogs which had been taken twice during the observation period was only two-thirds of that of the control group in kennel 4. Three weeks after exposure 1 dog in kennel 3 died. The autopsy revealed advanced emaciation and anemia, ascites (750 cc. of transudate in the abdominal cavity), and swelling of the liver. Histological alterations noted were severe anemia of the spleen, dilatation of the capillaries of the liver, and atrophy of the liver cells. The bone marrow showed severe exudate of plasma, edema, and hyperemia.

All dogs in kennel 4 (control group) remained healthy.

As the question of this experiment—whether the noxious wood preservative would have any influence on dogs—could already be answered, the experiment was discontinued one month after it was started by replacing the barrels in kennel 3 by unpainted ones. The sick dogs soon began to improve and recovered within the next two months.

DISCUSSION

In order to explain the somewhat superficial performance of these experiments as compared with the very intensive study of hyperkeratosis and x-disease in this country, I should like to stress that until the beginning of 1950, when the above (unintentional) experiments had already been

finished, nothing was known in Germany about the disease and its economic importance in the U. S. Later, when literature on the disease became available in Germany, further and larger comparative experiments could not be carried out, because the noxious wood preservative was no longer available in the required amount.

Nevertheless, the observations made during the experiments with cats and dogs showed at least some of the symptoms seen with hyperkeratosis, so it is deducted that these animals can be influenced adversely by the agent of hyperkeratosis.

Although it is not possible to compare the experimental disease in dogs and cats with field cases, for lack of any description of natural cases on the German farms, I should like to emphasize that not only the lesions ought to be regarded as significant but also the symptoms in the genital organs. As mentioned in my first article, abortion followed by sterility had often been observed in cattle. Therefore, the abortion in the dog deserves particular consideration. In the cat, the pregnancy apparently was too far advanced to be influenced by the chemical ingredient in the wood preservative.

As is the case with many other chemical poisonings in cattle, one should consider that in the case of hyperkeratosis the poison might also be excreted with the milk, which might become an easy source of poisoning for dogs and cats under field conditions. Therefore, attention should be paid to the behavior of cats and dogs on farms where cattle have been affected with hyperkeratosis.

As dogs and cats have economical advantages when compared with cattle, they might be used for experiments with chemical material suspected of being a possible causative agent of hyperkeratosis. But in this connection, it must be emphasized that cats are particularly sensitive to chemical ingredients such as phenols in coal-tar wood preservatives, and cat distemper presents some symptoms which might confuse the picture. Sufficient precautions and controls ought therefore to be taken in using cats for experimental work with hyperkeratosis.

CONCLUSIONS AND SUMMARY

1) Observations under field conditions in Germany indicate that cats may be adverse-

ly influenced by the chemical agents found in a certain batch of a German coal-tar-wood preservative.

2) Cats and dogs so influenced by the noxious wood preservative under conditions resembling those in the field in Germany, showed some of the symptoms seen with hyperkeratosis in cattle.

3) Cats and dogs might be used, with certain precautions, for experiments with hyperkeratosis.

4) Attention should be paid to the behavior of cats and dogs on premises where hyperkeratosis occurs in cattle.

Hemlock Poisoning in Swine

An instance occurred in Alameda County (California) of poisoning of swine from hemlock, which was unusual as the hogs were trough-fed on platforms. The feed consisted of garbage with grain mixed into it.

The hogs, totaling 224, were of all ages and in several pens. Feeding started at 9 a.m. on August 31, and in one hour approximately half of the garbage-barley mix had been distributed. It then was noticed that most of the hogs were staggering and some were down. The feeding was stopped and the troughs and platforms cleaned and washed. All of the hogs developed symptoms and 45 of them died. After several hours, the others recovered.

Pronounced symptoms consisted of trembling of the flank muscles, staggering, paralysis of the legs, labored breathing, prostration, and rise in temperature from a few degrees to as high as 109 F. in the most severely affected.—*California Vet.*, Nov.-Dec., 1951: 26

Streptococcal and pneumococcal pneumonia were produced in rats by intrabronchial inoculation. Half of the animals were treated with cortisone beginning five days before infection, while the other half served as untreated controls.

The survival rates in all experiments were less favorable among the animals treated with cortisone.—*Cortisone Investigator*, Nov. 1, 1951 (*Merck*.)

One can not assume that a cow is free from brucellosis because she has a fine healthy calf at her side.

Chronic Copper Poisoning in Sheep

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THE SPECIFIC susceptibility of sheep to copper has been recognized and reported by several investigators.¹⁻⁴ Since the salts of this metal are common agricultural chemicals, there is considerable opportunity for sheep to be exposed to them. The purpose of this article is to report the occurrence of an outbreak of copper poisoning in a farm flock.

Examination of a ewe brought to the laboratory for diagnosis revealed lesions suggestive of copper poisoning. The ranch involved was visited Dec. 15, 1950. Several animals had died during the preceding two weeks and autopsies were performed on 2 additional ewes.

The autopsies revealed lesions characteristic of chronic copper poisoning: a generalized icterus; the liver was yellow and friable; the kidneys were enlarged, extremely dark in color with a metallic luster; and the urine was coffee-colored. Samples of liver from 2 ewes submitted to chemical analysis gave values of 1,078 and 1,340 p.p.m. Cu on a dry weight basis.

Of 104 ewes in the flock, 19 died during a three-month period. Autopsies were not made in all cases, but it is presumed that most deaths were due to copper poisoning.

The ewes had been pastured on fall-sown Ladino clover in an old peach orchard of 7½ acres, but also had access to other green pastures. During the preceding seven years, the orchard had received two dormant sprays of bordeaux mixture per year with a yearly application of 44.4 lb. CuSO₄ per acre. The total application for the seven years amounted to 311 lb. CuSO₄ per acre.

A sample of clover collected from the orchard April 11, 1951, about three months after the last application of spray, had a copper content of 42 p.p.m. Since there had been considerable rain and a good vegetative growth since the last application of spray, it is assumed that most of the copper in

the clover sample had been taken from the soil by the clover plants.

DISCUSSION

With the increased value of sheep, producers are relying more on the veterinary profession than previously for help concerning the health of their animals. Since copper salts are common agricultural chemicals, loss from copper poisoning is not particularly uncommon. Losses from orchard spraying,^{2,3} mineral mixtures,⁴ liver fluke control,⁵ and subterranean clover,⁶ have been reported. At this station, we have observed occasional losses following the use of copper sulfate as a worm treatment and in lambs following treatment for foot rot where the contamination of ewes' udders and forage with copper sulfate, or ingestion of the bath, may have been the source of copper. Because of our unfamiliarity with the postmortem picture, a diagnosis of copper poisoning was not made in some of the earlier cases.

While the copper content of natural forage is extremely variable, it has been demonstrated that subterranean clover pasture with a copper content of 12.8 p.p.m. is toxic to sheep.⁶ It has also been reported that the addition of as little as 25 mg. of copper per day to a "normal" ration will raise the copper stored in the liver to a dangerous level in 228 days.⁷ It can be readily seen that copper values in forage as high as that encountered in this investigation would be extremely dangerous.

The copper content of sheep liver likewise is extremely variable. Normal livers rarely contain more than 500 p.p.m.⁸ and may be as low as 16 p.p.m.⁴ While a high concentration of copper in the liver may have little diagnostic significance in some high copper areas,⁸ values over 500 p.p.m. in areas where the copper content is normally low are of significance.

Since losses may continue for as long as five months after the ingestion of copper,⁴ it may be difficult or impossible in some instances to locate the source of the poisoning.

Published as Technical Paper No. 688 with the approval of the director of the Oregon Agricultural Experiment Station. Contribution of the Department of Veterinary Medicine, Agricultural Experiment Station, Oregon State College, Corvallis.

SUMMARY

Losses of 19 of a flock of 104 ewes are reported following pasturing on Ladino clover grown in an orchard sprayed with bordeaux mixture. Subsequent analysis of the clover revealed the copper content to be 42 p.p.m. Attention is called to the danger of the poisoning of sheep by copper from several sources.

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Isolation of Newcastle Disease Virus from a Calf

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Kingston, Rhode Island

Since Newcastle disease was first reported in 1926, a great many host species have been identified. These susceptible species have been mainly avian, but a few mammalian hosts are known. Several natural outbreaks of this disease, accompanied by virus isolation, have been reported in man.¹⁻⁴ Following intracerebral inoculation with Newcastle disease virus, mortality was produced in sheep and swine.⁵ Syrian hamsters were susceptible to intracerebral

inoculation with an egg-propagated California virus.⁶ Reagan's hamster-modified virus was infective to Swiss albino mice, *Macaca rhesus* monkeys, guinea pigs, rabbits, ferrets, sheep, and calves by the intracerebral route of inoculation.⁷

The following is a report of the isolation of Newcastle disease virus from the lung of a 6-month-old calf that had died with respiratory symptoms.

In 1949, the University of Rhode Island constructed an isolation unit approximately 1 mile from the barn housing the main dairy herd and approximately 1½ miles from the poultry farm. This unit was designed to conduct research studies on the etiology of bovine granular vaginitis, and on the respiratory diseases of poultry.

During the fall, winter, and spring of 1949-1950 and 1950-1951 these two projects were carried on simultaneously. The brooder units in which diseased birds were housed were located 50 to 100 ft. from the barn in which the calves and heifers were stabled. The same attendants took care of the chickens and the calves.

CASE REPORT

On March 10, 1951, 1 of the calves at the isolation unit was reported sick. Upon examination, it was found that the animal's lungs were congested. The calf was depressed, dyspneic, and suffering from anoxia. The temperature was subnormal. Later that afternoon the calf died.

The postmortem examination revealed the calf died of asphyxia, as the lungs were very edematous and the bronchioles and bronchi were filled with a blood-tinged, watery exudate. The pleural cavity also contained a considerable amount of this fluid. At the necropsy, some of the blood-tinged exudate from one of the large bronchi was removed for laboratory examination. Part of this material was treated with streptomycin and inoculated into the allantoic cavity of 7-day-old embryonating eggs. Three of the 6 inoculated embryos died. After the first passage, this material was inoculated into 11-day-old embryos, where it produced death in forty-eight hours. The allanto-amnionic fluid from the harvested eggs was tested with chicken blood from a susceptible bird and hemagglutination took place.

This agent was then introduced intra-

Contribution No. 783 of the Rhode Island Agricultural Experiment Station, Kingston.
From the Department of Animal Pathology (Yates and Fry) and the Animal Husbandry Department (Henderson), University of Rhode Island, Kingston.

tracheally into 4 chickens 5 weeks of age, and these birds exhibited respiratory symptoms five days after inoculation. The virus was re-isolated from these birds via egg inoculation.

Known Newcastle antisera were obtained from Dr. C. A. Brandly, University of Wisconsin, and from birds at this station that had recovered from induced Newcastle disease (strain P22). These sera were effective in neutralizing over 100,000* and over 100,000,000* lethal embryo doses of the virus, respectively.

Twenty-one birds that had recovered from a respiratory disease induced by the agent isolated from the calf withstood intratracheal challenge with Newcastle disease virus (strain P23). Twenty-two birds that had suffered from Newcastle disease (strain P22) withstood intratracheal challenge with the agent isolated from the calf.

The authors believe this to be the first time that Newcastle disease virus has been isolated from a natural outbreak in the bovine species. Studies are now underway to determine if this agent can be successfully introduced into other susceptible calves and if so, by what routes of inoculation.

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*Highest number tried.

Ammonium Lactate in Ketosis in Dairy Cows

About 4 oz. of ammonium lactate *per os* night and morning for about five days has proved to be helpful, particularly in alimentary ketosis in dairy cows, originating from the intake of large quantities of grass silage containing much butyric acid and little lactic acid. Acute hormonal ketosis gives a less favorable response.—*Vet. Rec.*, 63, 1951: 494.

Toxicity to Cattle of Toxaphene and Chlordan Grasshopper Baits

In the summer of 1949, toxaphene and chlordan baits were widely used for the control of grasshoppers on rangelands. In Montana alone, over 750,000 acres of rangelands were treated with toxaphene and chlordan bran baits, at the rates of 5 to 20 lb. of bait per acre.

The purpose of this investigation was to establish the lethal dosage of toxaphene and chlordan and to determine the resulting symptoms and lesions.

Seven heifers and young cows weighing from 500 to 800 lb. were fed varying amounts of bran grasshopper baits containing toxaphene and chlordan.

The results indicate that cattle may develop toxic symptoms from eating 4 to 10 lb. of bran containing 0.68 per cent toxaphene, and that more than 10 lb. will cause fatal poisoning. In terms of toxaphene toxicity, the sublethal toxic doses were between 35 mg. and 110 mg. per kilogram of body weight, while the lowest lethal dose was 144 mg. per kilogram.

The chlordan bran, containing 0.34 per cent chlordan, produced no symptoms in doses up to 13 lb. Sixteen pounds produced symptoms, and 1 fatal case resulted from feeding 8.5 lb. of a double-strength bait containing 0.74 per cent chlordan. In terms of chlordan toxicity, no symptoms were produced by doses up to 52 mg. per kilogram of body weight; 91 mg. per kilogram was toxic; and in 1 case 129 mg. per kilogram was fatal.—*Marsh, Johnson, Clark, and Pepper: Montana Agric. Exper. Sta. Bull.* 477, Oct., 1951.

We still like to treat puppies twice for ascariasis, about ten to fourteen days apart.—*A. G. Misener, D.V.M., Chicago.*

NUTRITION

The Importance of Nutrition in Veterinary Medicine

Men trained in nutrition must be broad-minded and not attribute all diseases to malnutrition. Likewise, men trained in infectious diseases should realize that nutritional deficiencies do exist and also that faulty nutrition may be a predisposing factor to infectious diseases. The feeding of balanced rations is necessary in order to keep animals in top physical condition. Regeneration of blood cells and tissues can not take place unless the body is properly nourished.

• • •

The value of increasing the carbohydrates in rations to prevent acetonemia in dairy cows and "pregnancy disease" in ewes is questionable. The feeding of molasses or glucose does not prevent or cure these diseases although glucose therapy intravenously is highly indicated since blood glucose is low.

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Various factors may predispose an animal to a disease. Among these are the soil, weather conditions, skin color, age heredity, malnutrition, and many others. "Conditioning factors" in producing nutritional deficiencies are important in veterinary medicine as well as human medicine. For example, gastroenteritis, diarrhea, and other intestinal disturbances may interfere with the digestion of food and the absorption of the end products. Certain compounds called "antivitamins" or structural analogues of vitamins are known to produce vitamin deficiencies. A number of these compounds have been demonstrated.

The proteins must be given full consideration in the rations of farm animals.

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Vitamin A deficiency may cause incoordination, staggering gait, and spasms in cattle, sheep, and swine. The eye lesions vary in animals which may be manifested in the cow by lacrimation, in the chicken by closed eyelids and a thick creamy exudate.

Anasarca is associated with vitamin A deficiency in cattle.

Reproductive disturbances are often encountered in both males and females. In many cases, the young are born prematurely, dead, or weak. The vitamin A requirements for reproduction are greater than for maintenance. Growth is impaired in vitamin A deficiency. As a rule, milk supplies lambs and calves with sufficient vitamin A if their mothers have been fed an adequate amount. Bright green, leafy, legume hay will supply cattle and sheep with adequate amounts. Five to 10 per cent of green alfalfa hay will provide pigs with sufficient vitamin A. The fish oils are the richest sources of vitamin A. By including 1 to 2 per cent of fish oils in rations of calves, pigs, and chickens, the vitamin A requirements are met and also supply an adequate amount of vitamin D.

Sufficient evidence is lacking to show that vitamin E is essential for reproduction in farm animals.

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Excellent sources of vitamin B₁₂ are liver meal, condensed fish solubles, fish meal, milk by-products such as whey and, of course, the vitamin B₁₂ concentrates. Meat scraps and tankage contain variable amounts. Rendering plant tankage is considered a richer source of vitamin B₁₂ than packinghouse tankage. As a rule, packinghouses utilize the glandular organs such as the liver and heart, which contain greater concentrations of this vitamin, whereas rendering plants leave these organs in the tankage.—*M. J. Swenson, D. V. M., Kansas, before the Kansas V. M. A. Annual Meeting, Wichita, Jan. 17-19, 1952.*

Antibiotics for Turkey Growth.—It appears that not only the animal species but also the basal diet employed can have an important bearing on the value of various antibiotics as growth stimulants.—*Nutr. Rev., Dec., 1951: 359-360.*

EDITORIAL

Veterinary Population Figures—United States and Canada

For those who want the most recent figures on the numbers of graduate veterinarians in this country and Canada and other data on the profession, the 1952 AVMA *Directory*, now at press, is a gold mine of information. Although statistics are considered dry reading by some people, we believe that a few figures compiled in advance will be of interest by furnishing the most recent and accurate estimates of veterinary personnel in the two countries.

The new edition of the *Directory* lists a total of 16,427 veterinarians distributed as follows:

United States	15,182
U.S. Territories	68
Canada	921
Foreign countries	256

The listings exceed by about 2,500 the total in the 1950 *Directory*. For the United States, the figure of 15,182 is almost 2,000 more than in 1950, nearly two-thirds of which can be accounted for by new graduates of the past two years. There is good reason to believe that there are about a thousand additional veterinarians in this country whose names do not appear in the 1952 edition, so that the total number of graduate veterinarians in the U.S. probably is between 16,000 and 16,500. Unfortunately, the number of veterinarians as determined by the U.S. Bureau of the Census in its 1950 survey is not yet available; however, the census figure in past decades has always run below those reported by the AVMA.

For Canada, the 921 listings are also known to be a few hundred less than the actual number of veterinarians in the Dominion, so that the veterinary population there probably numbers about 1,300.

Assuming that, all told, there are about 17,500 veterinarians in the U.S. and Canada, the actual listings of the two countries total 16,103 or 92.0 per cent, — a very high proportion when all factors are considered.

A veterinarian is listed in the 1952 *Directory* only if the Association's directory

department has confirmed information of his address, school, and year of graduation. The estimate of 1,000 veterinarians in the United States not yet listed is based on names received by the directory department but from whom the substantiating information was not received in spite of repeated efforts to obtain it.

Most of the added listings in the *Directory*, over and above the new graduates, are due to the excellent cooperation of the Bureau of Animal Industry and the federal and state livestock and sanitary officials during the past year as part of a special project carried on with their assistance. This project was undertaken by the Association as part of its civilian defense activities for the purpose of locating every possible member of the profession.

The five states with the largest number of veterinarians are:

California	1,172 listings
New York	1,084 listings
Iowa	962 listings
Illinois	944 listings
Ohio	903 listings

The five states with the greatest number of AVMA members are:

California	880 members	(75.2 per cent of the total)
New York	738 members	(68.8 per cent of the total)
Ohio	588 members	(65.1 per cent of the total)
Illinois	584 members	(61.8 per cent of the total)
Iowa	563 members	(58.5 per cent of the total)

The national average for percentage of veterinarians who belong to the AVMA is 68.4, which means that seven out of every ten are members. The proportion of members runs considerably above average in states with smaller numbers of veterinarians; following are the leaders:

Connecticut	140 listings	82.9 per cent members
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Nevada	34 listings
80.0 per cent members	
New Mexico	52 listings
80.0 per cent members	
Montana	98 listings
78.6 per cent members	
Florida	261 listings
78.2 per cent members	
Utah	77 listings
78.0 per cent members	

How many veterinarians can be used to good advantage in the United States or any other geographical area is a moot question. Analysis of factors such as human population, number of farms, and livestock and poultry populations, which certainly bear some relationship to needs for veterinarians and veterinary medical services, does not answer the question. Some states with comparable data on the factors named have marked differences in the number of veterinarians. There are too many variables to arrive at any statistically acceptable formula for determining the veterinary personnel needs of a given area.

The 1952 *Directory* contains pertinent statistics for each state and province and purchasers of it will have an opportunity to make their own comparisons and calculations and to draw their own conclusions. The figures given here are just a sample.

Thanks, Associated Serum Producers

"We think we have been doing a much-needed public relations job for the veterinary profession, but we would like to know what you think."

That, in effect, was what representatives of the Associated Serum Producers, Inc.,* recently told us and editors of other publications in the field of veterinary medicine in a report of their eighteen years of group activity.

In reply, we say:

If it were not for the efforts of people such as you, the profession could not have attained the prestige, size, and extensive farm patronage it now enjoys. For the public educational work you have done and for the ethical professional standards you have campaigned to preserve, the veterinarians of North America owe you their confidence and sincere thanks.

A brief review of the profession's public relations activities seems necessary here in

order to understand what has been accomplished by the Associated Serum Producers and their educational bureau, the American Foundation for Animal Health.

As recently as the early 1930's, the veterinary profession and its associations were still uncertain about their responsibilities in disseminating information to the public, and even about the advisability of approving most forms of publicity. Most veterinary medical associations, including the AVMA, had not yet decided whether they had any obligation, or need, to tell the public what veterinarians were doing.

While that problem was being debated, a group of ethical producers of biological and pharmaceutical products decided that something had to be done to overcome farmer complacency on hog cholera control and to curb an alarming trend toward over-the-counter diagnosis and treatment of serious animal diseases.

Educating Middlewest farmers to have hog cholera vaccinating done—and done by veterinarians—was, therefore, the initial focus of the Associated Serum Producers' program, a program to which each of the members contributed in order to sponsor paid advertising in farm magazines. That was eighteen years ago. Since then, the program has been broadened gradually to underwrite public service information and paid advertisements on a national scale covering many phases of livestock and pet health. This program, sponsored by 19 companies, does for the veterinary profession what has been done so effectively by individual companies for the medical and other professions.

One shortcoming of any program of this type is that its effect on public opinion can not be measured directly. No one can say exactly how much a project with so many intangible aspects contributes to a profession's growth. But, one thing is certain: Had it not been for the educational leadership provided by the Associated Serum Producers and other ethical suppliers, the over-the-counter threat would be much greater than it now is.

The success of the A.S.P. program made clear to American veterinarians the need for good public relations and emphasized that it was time for veterinarians, themselves, through their professional associations, to analyze that need and develop their own programs accordingly. One outgrowth

*Turn to adv. p. 29 for a list of the members of the Associated Serum Producers, Inc.

is the far-reaching AVMA public relations program—a many-sided project developed over a period of fourteen years to give direct support and guidance to AVMA members and constituent associations in their relations with the press, radio, motion pictures, and television. By virtue of its recognized status in national affairs, the AVMA is able to make the sentiments and achievements of the profession known throughout North America.

In the long road ahead, veterinarians will continue to need the services of national, state, and local organizations which can tell their story to the public. True, with prevailing high values of livestock and consequent demand for competent veterinary medical services, practice is so remunerative right now that it is easy for veterinarians to forget the benefits that already have accrued from favorable publicity of whatever origin. But the interests that have worked and are working to put veterinary services in secondary position to the drugstore counter and nostrum peddlers are busy in this era of prosperity, pouring millions of dollars into paid advertising and high-powered messages that encourage home treatment of all kinds of animal diseases. It is needless to point out what an impact these methods would have among livestock owners in times of a dollar shortage.

Think about that the next time you place an order, and ask yourself whether your supplier is spending some of his profits to build up, or to destroy, you and your profession. Organizations such as are represented in the Associated Serum Producers had to make that choice in the early 1930's. They decided to go on building as they had been doing for many years as individual companies.

Looking at the latest earnings statements of a few companies that took the other road, it becomes obvious that the ethical suppliers sacrificed an opportunity for much greater financial gain. But, in doing so, they maintained moral integrity that warrants the respect of every veterinarian. And, if all the facts were known to the public, their policy would warrant the respect of all animal owners, too, because it is the key to an enduringly successful animal industry.

Dr. R. A. McIntosh 1885 - 1951

Dr. Robert Andrew McIntosh, one of the most widely known veterinarians on this continent and for twenty-nine years head of the Department of Medicine at the Ontario Veterinary College in Guelph, Canada, died Christmas Day in the Guelph General Hospital. He was 66 years of age.



Dr. R. A. McIntosh

His outstanding ability as a teacher was recognized by all students who were privileged to study under him, and he was frequently invited to speak to veterinary and livestock groups both in Canada and in the United States.

Dr. McIntosh spent his early years on a farm near Morden, Man. After graduating with a M.D.V. degree from the McKillip Veterinary College in Chicago in 1909, he returned to Manitoba where he carried on a general practice for many years. In 1920, he was asked by the late Dr. C. D. McGilvray, then principal of the Ontario Veterinary College, to join the staff of that institution, at that time located in Toronto, as a part-time instructor. When the College was moved to Guelph in 1922, Dr. McIntosh joined the full-time staff, taking over the duties as head of the Department of Medicine. At the time of his death he was still departmental head, and gave particular attention to diseases of ruminants and swine, and pharmacology.

Dr. McIntosh was awarded a bachelor of

veterinary science degree by the University of Toronto in 1929. He was a member of the American Veterinary Medical Association (joined in 1923), the Canadian Veterinary Medical Association, and the Ontario Veterinary Association. He was a past-president of the latter organization, and was identified in an advisory capacity with many livestock groups throughout Canada. He was honorary president of many Ontario Veterinary College classes throughout the years. In the spring of 1951, the graduating class of 1950, the last class of which Dr. McIntosh was honorary president, presented to the College a portrait of Dr. McIntosh painted by Evan Macdonald, well-known Guelph artist. This painting hangs in the main hall of the College. Dr. McIntosh was also an active member of Norfolk Street United Church in Guelph, where he served in various capacities.

Dr. McIntosh lived a full life and enjoyed the fellowship of a host of close friends. His honest personality won the immediate confidence of all those with whom he came in contact. Affectionately known as "Dr. Mac", he was one of the most popular members of the Ontario Veterinary College faculty, with his colleagues, undergraduate students, and graduates alike.

Although not in the best of health for some time, Dr. McIntosh continued to carry out his daily activities in his usual conscientious manner. Early in December he suffered a cardiac attack, but refused to cancel an engagement in Orangeville, Ont. However, a few days later he suffered a more serious attack and was admitted to the hospital at that time.

Besides his wife, the former Ethel Shields, he is survived by three sons, Lorne S. of Detroit, Donald H. of Port Nelson, Ont., and Forbes R. of Sudbury, Ont.

Practical Application of Veterinary Research

To date, more than 192,176,344 blood samples have been made for brucellosis determination in our cattle herds, and 9,689,603 calves have been vaccinated since the initiation of the calfhood vaccination project, with 416 modified certified counties, which means the infection is less than $\frac{1}{2}$ of 1 per cent.—*California Vet.*, Nov.-Dec., 1951: 27-28.

Award in Research on Canine Diseases

The National Dog Welfare Guild, 114 E. 32 St., New York City, has just released a leaflet, entitled "My Dog Has Only Two Weeks to Live," to inspire and encourage more active research in the field of dog diseases. There is also a \$1,000 cash research award.

This award is a standing offer available to that individual, a resident and citizen of the United States, and/or his associates who shall discover or come upon through his or their own efforts, within the two years previous, a satisfactory cure, treatment, prophylactic, as determined by the Guild, for any one or more of the following canine diseases: leptospirosis or infectious jaundice; rabies; follicular or demodectic mange; encephalitis and allied sleeping sickness; and poliomyelitis, chronic chorea, and any other canine disease which later may be added to the list by the Guild.

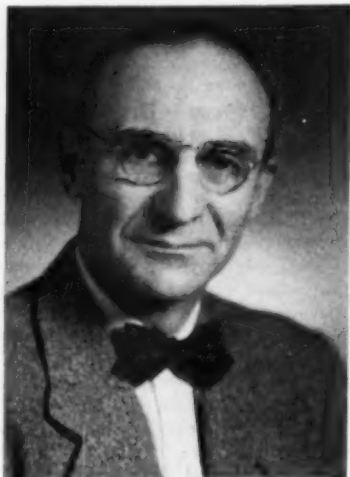
The National Dog Welfare Guild, organized to secure better care, control, and understanding of all dogs, is the official non-profit national sponsor of National Dog Week which is being observed for the twenty-third consecutive time Sept. 21-27, 1952. Mr. Raymond J. Hanfield is the executive secretary and Bob Hope, the actor, the general chairman.

Did Your "Proceedings Book" Arrive in Good Condition?

The AVMA is interested in learning from members about the condition in which their 1951 "Proceedings Book" reached them. The mailing of the book (the 1951 volume weighed 26 ounces) presents a problem each year with respect to the number of pages, weight of paper used for the envelope, its size, etc. Envelopes for the "Proceedings Book" have been "tailor made" for the past two years, i.e., they have been especially designed to meet the requirements necessary for the book to reach members in good condition. This would be affected to a considerable extent, of course, by the handling of the books in the mails. Any member whose 1951 "Proceedings Book" reached him in poor condition would perform a helpful service if he would drop a line to the AVMA office.

Dr. W. A. Aitken Appointed Editor-in-Chief

The Executive Board is pleased to announce that Dr. William A. Aitken has accepted appointment as editor-in-chief of the Association's publications. He has been in private practice in Merrill, Iowa, for the



Dr. W. A. Aitken

past twenty-one years, and having sold his extensive practice to Dr. R. C. Jacobs (ISC '42), a native of Iowa, will be able to take up his new duties early in February.

Born at Paullina, Iowa, April 11, 1895, he graduated from high school there in 1912, and received his D.V.M. degree from Iowa State College in 1917. In August of that year, following entry of the United States into World War I, Dr. Aitken was commissioned as a second lieutenant in the Veterinary Corps, Regular Army. After a period of training at Fort Oglethorpe, Georgia, he served overseas with the 81st Field Artillery, A.E.F., from November, 1918, to July, 1919.

Upon returning to civilian life, he was appointed an assistant state veterinarian in the Iowa State Bureau of Animal Industry and conducted tuberculin tests of cattle for several months in the just-beginning bovine tuberculosis eradication campaign. Late in 1919, he joined the faculty of the Division of Veterinary Medicine at Iowa State

College and taught in the Department of Anatomy for eight years, first as instructor and later as associate professor; in 1927, he was made associate professor of surgery, a position he held until 1931 when he entered practice in Merrill.

When the AVMA Committee on Education was reorganized as the Council on Education, in 1946, Dr. Aitken was elected for a six-year term, representing general practice, on the three-man executive committee of the Council; this committee is charged with making periodic inspections of the accredited colleges of veterinary medicine and inspection of newly established schools for accreditation purposes. He has served as chairman of the Council since 1950, a position he will relinquish when his successor is selected at the annual meeting of the Association next June. He also was chairman of the Section on General Practice at the AVMA annual meeting in Washington, D. C., in 1940.

From 1931 to 1938, Dr. Aitken was secretary of the Interstate Veterinary Medical Association, a regional association comprising members in Iowa, Minnesota, North and South Dakota; he was elected its president in 1940. He is well known to veterinarians, particularly in the Middlewest, as a general practitioner and has appeared on the programs of veterinary medical associations throughout the country. His work with the Council on Education has brought him into contact with university and college officials and with veterinary educators in the United States and Canada. This work, plus his teaching experience and many years in a large practice, give Dr. Aitken a keen insight and thorough understanding of veterinary medicine in both its academic and professional aspects.

As an author, he has contributed many articles to veterinary medical literature, among which are such subjects as "The Sinuses of the Ox," "Estrous Cycle of the Mare," "So-Called Hemorrhagic Septicemia," and "Swine Erysipelas."

He married Elizabeth Ingersoll of Ames, Iowa in 1921. They have two children: a son, Robert, a petroleum geologist, of Wichita, Kan., now on active duty with the Marine Corps Reserve, and a daughter, Kathleen.

CURRENT LITERATURE

ABSTRACTS

Effect of Penicillin and Dihydrostreptomycin on *Staphylococcus Pyogenes* Mammary Infections

An hypothesis of pathogenesis of *Staphylococcus pyogenes* in the bovine mammary gland is proposed and therapy with massive doses of penicillin and/or dihydrostreptomycin used singly or in combination is described. A Combined dosage of 1 million units of penicillin and 1 Gm. of dihydrostreptomycin in 50 ml. of sterile distilled water, infused four times at 24-hour intervals in lactating glands and at 24- or 48-hour intervals in dry glands, produced recoveries in 70 per cent of 20 lactating quarters and 73 per cent of 19 dry quarters. Results suggest that such combination of antibiotics is more effective than penicillin alone, especially in treatment of *Staph. pyogenes* in the lactating gland.—[O. W. Schalm and G. M. Woods: Effect of Massive Doses of Penicillin and Dihydrostreptomycin, Employed Singly or in Combination, on *Staphylococcus Pyogenes* Mammary Infections. *Am. J. Vet. Res.*, 13, (Jan., 1952): 26-30.]

The Field Use of Avianized Distemper Virus in 100 Dogs

In 1949, Cabasso and Cox reported the adaptation and modification in the developing chicken embryo of a strain of virus used for the production of vaccine and virus for the Laidlaw-Dunkin method of dog immunization.

This paper is concerned with this canine distemper virus (modified) avianized. A single subcutaneous injection of this modified virus confers solid immunity. It is truly modified since it is not pathogenic and is not transmissible from ferret to ferret or from dog to dog. It can be administered to young dogs which have lost parental immunity.

One hundred distemper-susceptible, previously unvaccinated dogs were vaccinated with avianized distemper virus. Animals selected were representative of the usual cross-section seen in everyday small animal practice. However, visibly sick dogs were not vaccinated.

No undesirable postvaccination reactions were encountered in any case. Slight febrile reactions of short duration may be encountered within the first week after vaccination, but many are missed unless temperatures are read four times daily. Twenty-six per cent of the dogs had postvaccination exposure to clinical distemper cases or in distemper wards. Eight per cent of those vac-

nated were exposed to a typical case of hard pad disease without showing symptoms during a prolonged observation period. An additional 15 per cent were maintained under conditions which, by past experience, were particularly favorable for transmission. Not a single break is known to have occurred.

Experience indicates that the chicken embryo-adapted virus of canine distemper is a safe, effective product for the immunization of unexposed dogs. Some evidence is presented to show that, with the establishment of immunity against distemper, they are also refractory to so-called hard pad disease.—[Edward J. Scanlon and George W. Fisher: Preliminary Report on the Field Use of Avianized Distemper Virus in 100 Dogs. *Vet. Med.*, 46, (1951): 432-436.]

Newcastle Disease Virus

Determination of the lethal doses₅₀ neutralization indexes (L₅₀ NI) of 175 serums obtained from normal chickens without known history of contact with Newcastle disease virus resulted in zero values for 75.42 per cent; 1.32 to 5.89 values for approximately 20 per cent; and 6.76 to 14.79 for approximately 5 per cent of the serums. The L₅₀ NI was 10 or less for 174 (99.43%) of the serums.—[E. R. Doll, M. Elizabeth Wallace, and William H. McCollum: Newcastle Disease Virus-Neutralizing Indexes of Normal Chicken Serums. *Am. J. Vet. Res.*, 12, (Oct., 1951): 345-346.]

Intradermal Johnin Test on Cattle Sensitized with *Mycobacterium Paratuberculosis*

A comparison is made between the size of skin reactions to intradermal johnin tests on artificially sensitized and naturally sensitized yearlings with *Mycobacterium paratuberculosis*. Increases in skin thickness of 3 mm. or more are classed as positive; increases of 2 to 3 mm., as suspicious; and less than 2 mm. as negative. (a) Artificially sensitized, retested at one-week intervals: 56.33 per cent of 300 tests positive and 16.34 per cent suspicious, while in the naturally sensitized there were only 5.66 per cent of all tests positive and 4.34 per cent suspicious. (b) Artificially sensitized, retested at two week intervals 75.18 per cent positive of 270 tests completed and 11.11 per cent suspicious, while in the naturally sensitized there were only 8.88 per cent of all tests positive and 2.22 per cent suspicious. (c) Artificially sensitized, retested at three-week intervals: 82.22 per cent of 180 tests com-

pleted positive and 10 per cent suspicious, while in the naturally sensitized there were only 13.88 per cent of all tests positive and 10 per cent suspicious. (d) Artificially sensitized, retested at four-week intervals: 88.67 per cent of 150 tests completed positive and 7.33 per cent suspicious, while in the naturally sensitized there were only 16.66 per cent positive and 14 per cent suspicious.

1) The sensitivity of cattle artificially sensitized with *M. paratuberculosis* is greater than naturally sensitized ones. (2) A partial local desensitization does take place when repeated intradermal injections are made. (3) A lapse of time longer than four weeks is necessary before retesting a herd of cattle for Johne's disease, if the same testing site is to be used each time.—[Dennis Sikes, Howard W. Johnson, and W. T. Oglesby: *A Comparative Study of the Intradermal Johnin Test on Cattle Artificially and Naturally Sensitized with Mycobacterium Paratuberculosis*. *Am. J. Vet. Res.*, 12, (Oct., 1951): 302-305.]

Calcium in Bovine Blood

The precipitation of calcium (Ca) from aqueous solution by soluble fluoride is obstructed by the presence of certain anions (e.g., bicarbonate, citrate, borogluconate). This principle has been applied to the study of Ca in bovine blood, whereby results are expressed as a fluoride-precipitable or "free" Ca and a fluoride-soluble or "bound" Ca fraction. Intravenous Na₂ citrate in normal cows confirms the implication that this anion may account for variations in the bound Ca, and indirectly also in the free Ca fraction, although obviously it does not exclude the possibility of other citrate-like factors. Intravenous Ca Cl₂ caused a much greater rise in free Ca in the blood of cows than did Ca borogluconate, which was anticipated and is in accord with the difference in the physical reaction to these salts.

The free Ca, which in normal, stable-fed cattle ranged from 5.2 to 6.4 mg./100 ml., was reduced to less than 5.0 mg. in ketosis, and less than 4.0 mg. in milk fever. These levels reflect the degree of central depression; for cows with ketosis are sluggish and sleepy, whereas milk fever is characterized by coma and prostration.

Luxuriant spring pasture is associated with a definite rise in bound Ca, and a tendency for the free fraction to be reduced. Limited observations of parturient cows indicate that both fractions tend to be reduced, contributing to the well-known fall in total Ca at parturition.

Procedure.—About 40 ml. of blood are collected in a tube containing heparin, with a minimum of obstruction to flow in the vein. Then 7 ml. of blood are blown from a pipette into the bottom of duplicate centrifuge tubes containing 12 and 16 mg. of carefully dried NaF. These are stoppered immediately and shaken vigorously a full minute, set aside 15 minutes, then again shaken, the stoppers removed, and centrifuged at high speed.

The remainder of the untreated blood is also centrifuged. Specimens of 2 ml. each taken from all tubes are examined for Ca. The mean of the 4 tubes with NaF is taken as the bound calcium.—[A. H. Craig, Jr.: *Fractionation of the Calcium in Bovine Blood by Fluoride Precipitation*. *Am. J. Vet. Res.*, 13, (Jan., 1952): 31-37.]

Aureomycin in the Treatment of Pneumonia

A total of 79 patients suffering from pneumonia were included in a comparative trial of aureomycin and penicillin, both given by mouth.

The two groups were comparable in such factors as age, duration of illness on admission, and bacteremia.

The results suggest that aureomycin is no more effective than penicillin for the average case. Four of the five deaths occurred in patients in whom cardiovascular complications were present, and it is suggested that for such patients early treatment, preferably by parenteral routes, is desirable.—[Margaret B. Eadie, Norman R. Grist, and Joan B. Landsman: *Aureomycin in the Treatment of Pneumonia*. *Brit. Med. J.*, (Dec. 8, 1951): 1365-1367.]

Pathogenicity of *Salmonella Typhimurium*

Three preparations of polynucleotide complex from *Salmonella* types, containing desoxypentose nucleic acid contaminated with small amounts of ribonucleic acid, were used for studying a mechanism of pathogenicity of *Salmonella typhimurium* experimentally inoculated in mice. Bacterial polynucleotide complex from *S. typhimurium* possessed a property which contributed to invasiveness of the homologous mouse typhoid culture injected subcutaneously in mice. Polynucleotide complex from antigenically related *Salmonella typhosa* and unrelated *Salmonella newport* also enhanced the pathogenicity of *S. typhimurium* in experimental mouse typhoid infections in mice. Several possible mechanisms of virulence enhancement of mouse typhoid bacilli injected subcutaneously in mice in mixture with bacterial polynucleotide from *S. typhimurium*, *S. typhosa*, and *S. newport* are discussed.—[Morris D. Schneider: *Pathogenicity of Salmonella Typhimurium Administered Subcutaneously to Mice in Mixture with Each Polynucleotide Complex from Salmonella Typhimurium, Salmonella Typhosa, and Salmonella Newport*. *Am. J. Vet. Res.*, 12, (Oct., 1951): 340-344.]

Infectious Pneumonia and Its Differentiation from Swine Influenza

Experiments described in this paper showed that there exists in the United Kingdom a common form of pneumonia of pigs distinct from influenza and caused by a filterable agent. This disease has sometimes been confused with swine influenza.

Transmission experiments with bacteria-free fil-

trates of lung suspensions indicated the presence of a filterable agent in several specimens, but the clinical symptoms in pigs thus inoculated differed considerably from those produced by inoculation of swine influenza virus, and no antibodies were produced against the latter virus.

These observations suggest that swine influenza is not prevalent at present in the United Kingdom and that the form of infectious pneumonia which is most common is due to a virus different from swine influenza. This disease appears to be widespread.—[T. S. Gulrajani and W. I. B. Beveridge: *Studies on Respiratory Diseases of Pigs. IV. Transmission of Infectious Pneumonia and its Differentiation from Swine Influenza. J. Comp. Path. and Therap.*, 61, (1951): 118-139.]

The Radiation Dose-Response Curve and Bacterial Mutations

Doses of ultraviolet light sufficiently large to kill all but a small fraction of *Bacillus anthracis* spores failed to increase the incidence of mutants in a culture grown from the survivors, although lower doses gave readily measurable increases. This was especially evident when rare mutations were sought, but also applies to biochemical mutants and streptomycin-resistance induced by ultraviolet light as well as when x-rays or nitrogen mustard are the inducing agents.

In the experiment reported, *B. anthracis* was subjected to ultraviolet light. Then inoculums of various sizes were removed from each treatment and planted into broth and permitted to grow for six hours. The incidence of streptomycin-resistant mutants in the resulting population in unirradiated cultures was not affected by inoculum size.

With bacterial mutations that occur at a low rate, a study of the progeny of the survivors of a large dose of mutagen may fail to reveal the mutagenic action.—[William E. Jordan, Roy B. Mefford, Jr., and Orville Wyss: *The Radiation Dose-Response Curve and Bacterial Mutations. Science*, 114, (1951): 436-437.]

Pest Control

Work carried out in the United States on the value of several new insecticides for the control of flies and other pests on livestock is reviewed.

Toxaphene and lindane can apparently be used in sprays on livestock without causing loss, if care is exercised over formulation and mixing; but can not be safely used as dips until formulations have been developed that will remain stable under adverse conditions.

Lindane is recommended as a spray to leave a toxic deposit for the control of flies, for use on dairy cows at a maximum concentration of 0.03 per cent for louse control (since only one or two applications per year are needed for this purpose), and as a spray for the control of other pests on livestock other than dairy animals. Specific for-

mulations of it have also been approved for registration as a drug for use on dairy cows for the control of mange mites. Toxaphene is recommended as a spray for livestock other than dairy animals, particularly for the control of lice, ticks, horn flies (*Siphona irritans* (L.)), and *Melophagus ovinus*.—[E. F. Knipling: *A Review of Insecticides for Livestock Pest Control. Rev. of Applied Entomol.*, 39, (1951): 171-172.]

Q Fever Aboard a Ship Transporting Goats

An outbreak of Q fever among the crew of a trans-Pacific cargo ship is described. Pregnant dairy goats formed part of successive cargoes of this vessel; from 15 to 32 per cent of the goats gave serological evidence of infection with *Coxiella burnetii*. The available evidence pointed to the goats as probable sources of infection for the crew. The probable modes of infection of the crew (use of infected raw milk or exposure to air-borne rickettsias) are discussed.—[William H. Clark, Edwin H. Lemmett, and Mary S. Romer: *Q Fever in California. IX. An Outbreak Aboard a Ship Transporting Goats. Am. J. Hyg.*, 54, (1951): 35-43.]

Tumors in Food-Producing Animals

An attempt has been made to determine the annual number, incidence, types, outstanding characteristics, and economic loss from tumors in food-producing animals.

It is estimated that, in 1949, 152,865 food-producing animals marketed in the United States had tumors, of which 14,900 were generalized.

The tumor incidence is lower than in man, probably because most of these animals are slaughtered at an early age.

The commonest types of tumors are given in tables and text. Of the 12 cancers most common in man, only three were more than rare in these animals; the others were rare or nonexistent. Sarcomas are about twice as common as carcinomas.

The annual economic loss from tumors in food-producing animals was calculated at more than \$3,000,000.00.—[Paul E. Steiner and John S. Bengston: *Research and Economic Aspects of Tumors in Food-Producing Animals. Cancer*, 4, (1951): 1123.]

Effect of Related Chemical Groups on Growth of *Brucella*

Three of the major synthetic dye groups that are structurally related were tested for their effect upon the growth of the three species of *Brucella*.

The only consistent pattern within the group was the ability of the xanthene compounds to inhibit *Brucella melitensis* at concentrations much lower than those permitting growth of *Brucella suis* and *Brucella abortus*.

The structure *per se* of the compound was not wholly responsible for the variation in growth.—[H. S. Cameron and Margaret E. Meyer: *The Comparative Effect of Related Chemical Groups on the Growth of Three Species of Brucella*. *Am. J. Vet. Res.*, 13, (Jan., 1952): 10-12.]

Keratitis in Cattle

A keratitis, apparently contagious, has been epidemic in parts of England. Darkness has been a helpful factor in promoting recovery.

Chloromycetin is an effective treatment and appears to be specific. In the concentrations used, it is not unduly expensive.

Working on the assumption that the condition may be of rickettsial origin, chloromycetin has been used, both as a 0.25 per cent lotion and as a 0.5 per cent ointment.—[P. K. Hall-Patch: *Keratitis in Cattle*. *Vet. Rec.*, 63, (1951): 824.]

FOREIGN ABSTRACTS

Action of Drugs from Condensation of Sulfanilamide with Formaldehyde

It is possible to obtain a product from the condensation of sulfanilamide with formaldehyde. Such a product, called "formo-sulfa," shows *in vitro* strong bactericidal properties against the following organisms: *Salmonella pullorum*, *Salmonella abortus-equina*, *Pasteurella avicida*, *Escherichia coli*, and *Micrococcus aureus*. Both "formo-sulfa" and the "formo-thiazol" liberate formaldehyde. There is considerable indication in the experiments described that the formaldehyde is responsible by the bactericidal action of these drugs. The p-aminobenzoic acid, condensed with formaldehyde, originated a compound of great bactericidal activity, which acts as the "formo-sulfa" by liberation of formaldehyde.—[Dinoberto Chacon de Freitas and O. F. Ribeiro: *Bacteriostatic and Bactericidal Action of Drugs from Condensation of Sulfanilamide with Formaldehyde*. *Rev. Fac. Med. Vet.*, 4, (1950): 257-266.]-G.T.E.

Brucella Abortus Vaccine Dried in a Frozen Condition

The author reviews the disadvantages of using strain 19 *Brucella abortus* vaccine and the advantages of using vaccine dried from the frozen state. He submits a precise description of the techniques in cultivating a high yield of living strain 19 organisms on a modified potato-agar medium (450 x 10⁶ per flask), in drying the suspensions in a dextrose solution from the frozen state with surviving percentages of about 50, and in sealing them under a high vacuum utilizing an Edwards freeze-drying apparatus. The ampules are pre-frozen in a refrigerator at -20 F. in a low speed centrifuge.—[D. Bosgra: *Pertaining to Brucella Abortus Strain 19 Vaccine Dried in a*

Frozen Condition. *Tijdschr. voor Diergeneesk.*, 76, (1951): 281-292.]-L.V.E.

Respiratory Failure of the Newborn

Treatment of asphyxia in the newborn may be accomplished by: (1) removing obstructions to the air passages; (2) giving artificial respiration until rhythmical movements have been initiated in the young animal; (3) rhythmic traction on the tongue at a rate of 5 to 10 times per minute (this, in addition to brisk rubbing of the skin, may act as a good stimulant); (4) forced dilation of the anus; (5) intravenous injection of lobeline, 2 to 3 mg; metrazol, 5 cc; or coramine, 5 to 7 cc.—[L. G. Ovejero: *Respiratory Failure of the Newborn*. *Veterinaria*, 15, (1951): 539.]-G.T.E.

Strangles

An epizootic occurred along the southern coast of Guatemala in which strangles showed a malignant course. Specimens submitted for bacteriological examination were positive to *Streptococcus equi*. A secondary organism found was *Corynebacterium pseudotuberculosis*. Treatment with sulfonamides and penicillin is specific for this disease. In advanced cases, these drugs must be given concurrently, and surgery may be indicated. An effective bacterin is described.—[Strangles or Adenitis Equina: By E. B. Garcia, *Direccion General de Ganaderia, Ministerio de Agricultura Guatemala*, Bull. No. 4, 1951.]-G.T.E.

Arthritis in Fowl

A spontaneous arthritis of fowl is described by the authors as it occurred in a small flock of 75 birds. Arthritis could be readily induced either by inoculation or intravenous injection of the organism involved. The latter could be isolated from the joints and sometimes from the blood of infected chickens. Rabbits, calves, and mice proved to be resistant to the infection.—[P. Nobrega: *Bacterium Arthropogenes as a Cause of Arthritis in Fowls*. *Arguivos do Inst. Biol. (Brazil)*, 11, (1940): 323-332.]-L.V.E.

BOOKS AND REPORTS

Animal Nutrition

This book presents many principles of nutrition and their application in feeding practice. This edition includes new and revised subject matter on enzymes and the use of isotopes in studies of the metabolism of nutrients; microbial digestion of carbohydrates; absorption of liquids and their intermediary metabolism; proteins and their metabolism; and the inorganic elements and their metabolism. The chapters on the vitamins and on growth have been revised and supplemented by new material.

Although highly recommended for students

majoring in animal nutrition, veterinary medicine, and related fields, a basic understanding of biochemistry and physiology is essential in order to understand and fully comprehend the material that is in this publication.

The book is cross-indexed as to subjects and authors. A list of visual aids in the form of motion pictures and film strips is given to supplement the material in the book. Excellent references are present in the form of footnotes and at the end of each chapter.—[*Animal Nutrition*. By Leonard A. Maynard. Cloth, 3rd ed. 474 pages. McGraw-Hill Book Co., Inc. New York. 1951. Price \$6.50.]—M. J. SWENSON.

Pipe Dreams

Mason's "Pipe Dreams" represent a clever intermingling of facts related to the manufacture and use of leather and saddles. Choice bits enliven the interesting material, and credit for "invention of the pneumatic tyre" for bicycles is accredited to a veterinarian, Dunlap, in 1888.

This small book gives considerable information on the history of methods and equipment used in the manufacture of leather, and illustrations of saddles for horses and bicycles and of harness for horses.

With the decreasing horse population in the United States and change of usage, this work of Mason's offers a bit of retrospection and knowledge uniquely presented.—[*Pipe Dreams About Leather and Saddles*. By Leonard K. Mason. Cloth, 84 pages plus 18 pages of figures and index. Walsall Lithographing Co., Ltd., Walsall, England, 1950. Price 8s. 6d.]—H. L. FOUST.

Textbook of General Surgery for Veterinarians

This enlarged second edition consists of chapters on the following subjects: wounds, wound infections, mechanical injuries, thermal and electrical injuries, hernias, atrophy, necrosis and gangrene, hypertrophy and hyperplasia, stenosis, dilatation and diverticulae, edema, inflammation, and cysts. Approximately two-thirds of the 315 figures depict equine lesions. All photographs and radiographs are of good quality.

Etiology, pathogenesis, diagnosis, and treatment are stressed. In the chapter on inflammatory reactions, the anatomical systems are considered individually with regards to their diseases which are amenable to surgical treatment. Classification and statistics for the common neoplasms are presented.

Despite high quality, the book has many omissions. No mention is made of such neoplasms as the mast cell sarcoma of dogs, equine sarcoids, and tumors of the central nervous system. Very little information is presented on surgical materials such as sutures and instruments.

The book is devoted to surgical diseases. Veterinarians and students of veterinary medicine who have reading knowledge of German will find it

useful.—[*Lehrbuch der Allgemeinen Chirurgie für Tierärzte*. By Walther Bolz. Cloth, 2nd ed. 498 pages. 315 illustrations. Ferdinand Enke Verlag, Stuttgart, 1951. Price 43.40 marks.]—RUE JENSEN.

Infectious Diseases of Domestic Animals

This volume is essentially a system of good, terse statements designed primarily to supplement lectures and discussions for undergraduate students of veterinary medicine. It will be of much value to the practicing veterinarian as well.

The book contains 356 pages divided into 60 chapters and describes 58 diseases. Certain diseases of undetermined etiology "are not included at this time" except as they "naturally enter into class discussion at their proper places as differential diagnosis problems."

Following the discussion of each disease is included a good list of references for further study.

Unfortunately, a few of the economically important diseases that have been described quite recently have not been included. Perhaps some of such diseases were omitted along with others of unknown etiology.

One of the real values of this volume is its concise manner of presentation — the reader is not burdened with a mass of unnecessary words. Veterinarians will find in it a good source of documented information on infectious diseases of domestic animals.—[*An Outline of the Infectious Diseases of Domestic Animals*. By Ival Arthur Merchant. Cloth, 356 pages. Mimeoprint. Burgess Publishing Co., 426 South Sixth Street, Minneapolis, Minn. 1951. Price \$5.00.]

Meat Inspection

The fourth edition of "Veterinary Meat Inspection" by Dr. Schonberg, professor of meat hygiene, and Dr. Zietzschmann, professor of anatomy, of the Veterinary College of Hannover, Hannover, Germany, has been essentially revised and improved.

In the initial chapter, the anatomy of the lymphatic system of porcine, bovine, and equine species has been worked out in exact detail. In further parts of this publication, the veterinary inspection of carcasses has been discussed with regard to the technique and legal regulations pertaining to the important and most frequent disorders and diseases. It deals with the meat inspection of cattle, calves, pigs, sheep, goats, horses, and dogs.

The legal regulations described in this publication are, of course, discussed with regard to the laws valid in Germany.

The numerous illustrations are descriptive and show normal as well as pathological findings in various species of animals.—[*Tierärztliche Fleischuntersuchung (Veterinary Meat Inspection)*. By F. Schonberg and O. Zietzschmann. Cloth, 4th ed. 322 pages. 169 illustrations. Paul Parey, Berlin, Germany. 1951. Price 37 marks.]—F. KRAL.

THE NEWS

Eighty-Ninth Annual Meeting Atlantic City – June 23-26, 1952

Television Will Highlight Convention Program

Closed-circuit telecasts of surgery and other veterinary medical demonstrations will be highlights of the 1952 AVMA convention's scientific program. Three sections, General Practice, Surgery and Obstetrics, and Small Animals, will present a portion of their program via the television cables and screens. Each of these section programs will have more than an hour of their time devoted to televised demonstrations which will be interspersed throughout the program from Monday, June 23, to Thursday, June 26.

Since this is only the second time that closed-circuit television has been utilized for presenting the scientific program of the convention, great interest is being manifested by veterinarians in the East. Experiences gained at the 1951 annual meeting in Milwaukee, where closed-circuit television was first employed by an AVMA program committee, will result in better demonstrations and presentation at the 1952 meeting. In addition to the officers of the three sections concerned, Mr. Walter Lawrence, of Radio Corporation of America, and Mr. John

Specialty Shops Along the Boardwalk at Atlantic City



Jewett of Pitman-Moore Company, have been busy planning and arranging for the 1952 television program. Drs. N. E. Wernicoff and T. M. Goldhaft of Vineland, N. J., of the Local Committee on Arrangements for the 1952 meeting, will be responsible for supplying the animals and "props" needed for the television program.

MAJOR SURGICAL DEMONSTRATIONS

The Surgery and Obstetrics and Small Animal Sections will present the major surgery. A bovine cesarean section will be one of the highlights. A mamnectomy of a bitch by Dr. C. L. Blakely, of the Angell Memorial Animal Hospital in Boston, Mass., will be a feature of the small animal surgery. The television demonstrations in the General Practice Section will include a series of short items on therapy and restraint of real practical significance. The other two sections will have several other major and minor surgery exercises.

LITERARY SCIENTIFIC PROGRAM OUTSTANDING

Only two section programs will be presented at one time. This arrangement allows for delegates to attend a maximum of the scientific sessions. The General Practice and Research programs are scheduled for the afternoon of June 23 and the morning of June 24. The Poultry and Small Animal Sections will be presented concurrently on the afternoon of June 24 and the morning of June 25. At the last two sessions—the afternoon of June 24 and the morning of the 26th, the Surgery and Obstetrics and Public Health Sections will convene. This schedule of the sectional programs is believed to be arranged for a minimum of conflict between professional interests.

GENERAL PRACTICE

A report on hog cholera vaccines by Dr. H. E. Biester, Veterinary Research Institute, Ames, Iowa, followed by a discussion of the paper by Dr. W. A. Aitken, AVMA editor-in-chief, is sure to be of interest to all general practitioners. The new vaccines were discussed comprehensively and capably at last year's convention by Dr. J. A. Baker of Cornell University. Dr. Biester's paper will discuss largely the developments which have occurred since August, 1951. Diseases of almost all species of livestock on farms and ranches in North America will be discussed in the papers and television demonstrations comprising this program.

RESEARCH SECTION

This program will consist of 18 fifteen-minute papers and a five-minute discussion period for each. These have been selected by the section officers from suggestions received from research workers and institutions. All institutions known to be conducting research on veterinary medical subjects were invited to submit suggestions to

the officers, who, after careful screening, have selected the papers and work which they believe will be of most interest and value to convention delegates.

POULTRY SECTION

The program for this section is beamed at the poultry pathologists in research, practice, or the laboratory. Outstanding authorities on poultry diseases will present papers during the six hours allotted to this phase of the program.

SMALL ANIMALS SECTION

In addition to the surgery which was mentioned in the discussion of the television demonstrations which will comprise part of this section's program, there will be papers on both the old and new problems confronting the small animal practitioner. This program is designed to interest the general practitioner as well as the small animal specialists.

SURGERY AND OBSTETRICS

Although the majority of the papers presented to this section will be primarily of interest to the general practitioners, there will also be subjects pertaining directly to small animal practice. The program material which is basically small animal in nature is included to broaden the interest in the section's program. A real effort has been made by all section officers to have programs of diversified, general interest so that at any time during the meeting every veterinarian can find a subject of interest.

PUBLIC HEALTH SECTION

The program arranged for this section is a new approach, at least as far as AVMA programs are concerned. The entire six hours has been divided into four periods of equal length. During each hour and one-half period, one broad subject will be discussed, such as rabies. For each subject, there will be one major paper followed by several short discussions.

Hobby Exhibits Invited at Atlantic City

The Committee on Local Arrangements for the 1952 convention is desirous of having members of the Association exhibit their hobbies in Atlantic City next June. The Committee feels certain that there are many veterinarians who have "past-time pursuits," some of which lend themselves to display purposes and which would provide an interesting and attractive feature if they were shown to others.

Since the Committee has no idea as to the number of veterinarians who would be interested in taking part in such an exhibit, the purpose of this notice is to inform members of the proposed "hobby show" at Atlantic City and to invite those interested to write in, indi-

cating the nature of the material to be displayed.

It is known that some veterinarians have outstanding collections of such things as stamps, coins, fire-arms, etc. Others are known to be expert camera artists; a few veterinarians have considerable drawing talent and it is possible that the profession has some members who actually paint, as do a number of physicians whose works are displayed occasionally at the American Medical Association convention.

The local committee has arranged with the AVMA to provide a limited amount of exhibit space for the hobby displays; also suitable booth equipment and backgrounds. However, these facilities can only be provided if members indicate their interest and needs. The exhibits will be under guard at night and special insurance will be carried, if necessary, to cover their value to owners.

It is hoped that this announcement will stimulate interest and participation. One of its purposes is to "discover" hidden or unknown talents among veterinarians as well as to provide something that might be a new and worthwhile feature of the convention.

All correspondence should be addressed to Dr. Raymond C. Snyder, Walnut Street and Copley Road, Upper Darby, Pa. Dr. Snyder is chairman of the Subcommittee on Meeting Rooms and Equipment for the Atlantic City meeting and has volunteered to look after the details of the hobby exhibit.

Dr. Young Appointed Western Regional Director, American Humane Association

After serving for sixteen years as managing director of The Anti-Cruelty Society of Chicago, Dr. W. A. Young has accepted the position of western regional director of the American Humane Association, with headquarters in Hollywood, Calif. He will resign his former position effective March 31, 1952, and will take up his new duties at once.

Dr. Young came to The Anti-Cruelty Society from the Animal Rescue League of Boston, having served there for eleven years as chief veterinarian of that organization. His work on the west coast, with a staff of five, will comprise the supervision of animals and their use in motion pictures, as well as in the developing television field for which the motion picture industry will make films. There will also be opportunity to establish new humane societies in the western region, to help those already established, and to further the work of livestock loss prevention, a field in which he has been active for a number of years.

Born on an Iowa farm, Dr. Young received

his D.V.M. degree from Iowa State College in 1919. After a brief period in practice, he spent several years as a veterinary inspector of livestock insurance and then went to Boston in 1925. During his years in Chicago, he was active in professional circles, service club work, and in other civic work. He is a past-president



Dr. W. A. Young

of the Chicago Veterinary Medical Association, a member of the board of directors of the Chicago Rotary Club, a past-president of the National Livestock Loss Prevention Board, and is secretary of that organization's successor, Livestock Conservation, Inc. In 1947, Dr. Young was elected treasurer of the AVMA and has served in that office since then. About two years ago, he was asked to conduct one of the first television pet clinics, a feature which was sponsored and produced locally in the beginning but later became a TV network program.

Dr. Young's decision to take up his new position resulted from the recent death of Mr. Robert F. Sellar, president of the American Humane Association, and the subsequent transfer of the western regional director to the Association's headquarters in Albany, N. Y. Dr. Young's successor at The Anti-Cruelty Society had not been announced at the time this item was written.

April 1 is Deadline for 1952 Humane Act Award Nominations

Do you know of a North American boy or girl, not over 18 years of age, who has been exceptionally kind to animals?

If so, please send his or her name and complete mailing address, together with full details of the kind act, to the AVMA office not later than April 1, 1952. Your interest may help that youngster win the 1952 AVMA Humane Act Award — which will bring the recipient na-

tional honors, plus a \$100 U.S. savings bond and a framed certificate.

Boys and girls who do not qualify for the top award, but whose acts are judged worthy of special recognition, will receive certificates of merit and, in some cases, subscriptions to the *National Humane Review*. Winners will be announced on June 23 at the opening session of the 1952 AVMA convention in Atlantic City.

Selections will be made by the Committee on Humane Act Award, headed by Dr. George W. Mather, University Farm, St. Paul 1, Minn. Qualifying acts may include rescues, written work, long-continued humaneness, and special projects in behalf of animals.

The 1951 winner was Burr Collett, of Barstow, Calif., who established a reputation as a "one man humane society" through rescues of dogs lost in the desert and press-radio projects designed to promote kindness to animals.

Annual AAHA Meeting

Preliminary plans have been completed for the forthcoming annual meeting of the American Animal Hospital Association to be held at the Hotel Huntington in Pasadena, Calif., April 30-May 3, 1952. An added attraction of this year's meeting is the use of telecasting for demonstrations of surgical procedures and clinical aids. An elaborate telecasting program is planned with many national authorities as demonstrators.

The meeting will open Wednesday morning, April 30, with a golf tournament for members and convention guests, with the afternoon devoted to a business meeting for the members and the assembling of booths. The general sessions will open on Thursday morning and

will be followed by three days of scientific papers and three sessions of telecasting.

All veterinarians are cordially invited to attend this meeting. Pasadena and the Huntington Hotel offer a unique setting for the convention. Hotel reservation cards may be obtained from Dr. W. H. Riser, executive secretary, AAHA, 5335 Touhy Ave., Skokie, Ill., or by writing directly to the Hotel Huntington, Pasadena, Calif.

S/LOUIS A. CORWIN, *Chairman,*
Public Relations Committee.

STUDENT CHAPTER ACTIVITIES

Pennsylvania Chapter.—At the Oct. 17, 1951, meeting of the University of Pennsylvania Student Chapter of the AVMA, Dr. Mark Allam, professor of surgery at the School of Veterinary Medicine, discussed surgical instruments and provided a generous display of the more important modern instruments.

On October 31, an open forum discussion of various honor systems was led by Dr. F. Harold McCutcheon, chairman of the faculty honor system committee and Dr. Kennedy, assistant dean of the Medical School of the University.

Dr. Sidney Steiner, Philadelphia, presented a paper on "Obstructive Jaundice in Swine Due to *Ascaris Lumbricoides* var. *Suis*," and the film "Battling Brucellosis" was shown.

On November 28, Mr. Childs of the American Guernsey Cattle Club and Mr. Juzi of the Golden Guernsey Association discussed the activities of their organizations with emphasis on advantages of herd registration and milk improvement programs. Their discussion was supplemented by the American Guernsey Cattle Club film "Man Made Miracles."

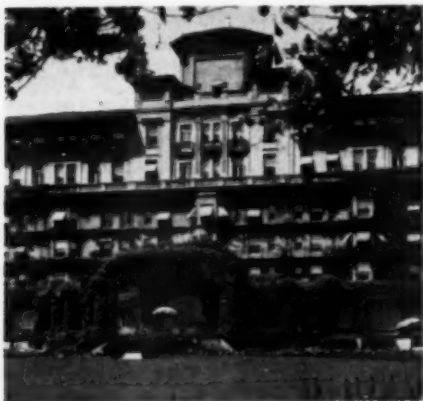
"Infertility Problems" was the subject chosen for discussion at the December 12 meeting by Dr. James Deubler, Newtown. The films "Bovine Surgery," "Swine Surgery" and "Necropsy of an Elephant" were shown.

The following officers were elected on Jan. 9, 1952: Laurs S. Nilsson, Jr., president; Paul W. Husted, president-elect; Amos P. Hollister, secretary; and Richard C. Horn, treasurer.

S/LYNN R. DERBY, *President.*

WOMEN'S AUXILIARY

The Auxiliary Student Loan Fund.—On Aug. 23, 1920, with Mrs. W. Horace Hoskins, president, presiding, the Women's Auxiliary to the AVMA met in Memorial Hall, at Columbus, Ohio. This meeting marked the beginning of the modern Auxiliary as we know it. Progress always seems to bear with it dissension, for the new is seldom completely right or completely wrong. So it was with this meeting and the suggestion that the



The Huntington Hotel, Pasadena, Calif., where the AAHA annual meeting will be held April 30-May 3, 1952.

Auxiliary lend its aid to student veterinarians. A loan committee consisting of Mrs. H. P. Hoskins, Mrs. C. H. Stange, and Mrs. C. D. Folse was appointed to consult with the deans of veterinary schools and members of the AVMA, to determine, if possible, if such aid were needed or wanted and how it should be administered.

So writes Mrs. Glenn I. Case in the history of the Auxiliary which she is preparing.

At the next meeting, in 1921, amendments, including the establishment of a student loan fund to assist needy veterinary students, were read and adopted. The following year, the first loan was granted. By 1924, the request for student loans had increased to a point in excess of the Auxiliary's ability to meet them, so the AVMA agreed at the annual meeting that year to place at the disposal of the Auxiliary \$2,000 of the Salmon Memorial Fund for student loan purposes. In 1925, constitutional revisions were adopted which authorized the executive board of the Auxiliary to set up a fund for student loans. This fund functioned satisfactorily until, in 1930, again requests for loans were so great that the Auxiliary was unable to meet all of them. Arrangements were made to borrow money from the AVMA until outstanding loans had been repaid. In 1934, the administration of the loan fund was taken over by the executive secretary of the AVMA, but in 1938 the Auxiliary again assumed responsibility for it.

The primary source of funds used for student loans is derived from a percentage of the annual dues of auxiliary members. The loan fund has been aided by the contributions of generous practitioners, commercial firms, and state auxiliaries.

Under the present Auxiliary by-laws, the second vice-president is responsible for the administration of the Student Loan Fund. On the recommendation of the dean of an accredited veterinary college, a senior student may apply for a loan. One half of the amount of the loan becomes due two years after the date it is made and the balance is due the following year. Interest is charged at the rate of 4 per cent per annum. This year, the Auxiliary house of representatives voted to increase the amount of an individual loan to a maximum of \$400. Through the years, a considerable number of worthy students, who might not have been financially able to stay in school without the assistance of the loan fund, have been able to complete their education and are now adding their knowledge and service to the profession of veterinary medicine.

S/(MRS. C. E.) HELEN BILD, *President*.

Maine Auxiliary.—The Women's Auxiliary to the Maine Veterinary Medical Association held its annual meeting at the Elmwood Hotel in

Waterville on Jan. 9, 1952, with 17 members and 1 guest attending.

Mrs. Robert Ingham entertained the group at tea during the afternoon. Following the banquet, the auxiliary sponsored a Scotch Auction.

At the business session, Mrs. Raymond Libby, delegate to the meeting of the national auxiliary in Milwaukee, gave a detailed report of this meeting. Further national auxiliary news was given by Mrs. A. E. Coombs, chairman of the Auxiliary House of Representatives. It was voted to contribute \$5 to the Student Loan Fund and \$5 to the Research Fund at this time. The following officers were reelected for the coming year: Mrs. L. B. Denton, Dover-Foxcroft, president; Mrs. J. A. Elliott, Bangor, president-elect; Mrs. A. E. Coombs, Skowhegan, vice-president; Mrs. S. D. Merrill, Augusta, secretary-treasurer. The following members were elected to the executive committee: Mrs. J. F. Witter, Orono; Mrs. E. C. Moore, Lewiston; and Mrs. S. W. Stiles, Falmouth Foreside.

The president appointed Mrs. Raymond Libby to serve again as the Maine delegate to the House of Representatives of the Women's Auxiliary to the AVMA at the national convention in Atlantic City.

Mrs. Raymond Larcom was admitted to membership at this meeting.

S/(MRS. S. D.) EVELYN H. MERRILL, *Secretary*.

U. S. GOVERNMENT

Dr. Crawford Retires from the Bureau of Animal Industry.—Dr. A. B. Crawford (GWU '14), Beltsville, Md., retired from the U. S. Bureau of Animal Industry on Dec. 29, 1951, after approximately forty-three years of federal service, more than thirty-seven of which were in the Bureau.

After receiving his D.V.M. degree, Dr. Crawford spent one year in meat inspection and then attended the instruction class on hog cholera serum plant inspection under Dr. F. A. Imler in Kansas City, and for the next four years saw service in various sections of Nebraska and Iowa in that connection.

During World War I, he served in the Veterinary Corps, U. S. Army, and shortly after his return to Bureau service in 1919, he was placed in charge of research on tuberculosis at the old experiment station in Bethesda. When the experiment station was moved to Beltsville in 1936, as a part of the Agricultural Research Center, Dr. Crawford served there under Drs. W. E. Cotton, J. M. Buck, and Adolph Eichhorn. On the retirement of Dr. Eichhorn in 1943, he was placed in charge of the Station. During his tenure at the Animal Disease Station, he was instrumental in having the Bureau take over the diagnosis of brucellosis in animals.

which led to the more efficient administration of control procedures on this disease.

In July, 1950, he was appointed in charge of the Bureau's European Mission for Research on Foot-and-Mouth Disease, with headquarters in Amsterdam, Holland, a position he held until November, 1951, when he was returned to the Washington office for retirement.

Dr. Crawford also served temporarily in the 1914 and 1924 outbreaks of foot-and-mouth disease, as a field veterinarian in the eradication of these epizootics. He is the author of many scientific articles and reports relating to research on tuberculosis, brucellosis, and vesicular diseases.

Dr. Crawford expects to maintain his residence in Washington, D. C.

Veterinary Personnel Changes.—The following changes in the force of veterinarians in the U.S. Bureau of Animal Industry are reported as of Jan. 11, 1952.

NEW APPOINTMENTS

Clarence A. Dionne, Los Angeles, Calif.
Mark Field, Mexico City, Mex.
Jonathan W. Harshbarger, Dayton, Ohio.
Leonard J. Hill, Montgomery, Ala.
George S. Jones, Atlanta, Ga.
Alphonso C. Newman, Albany, N. Y.
George J. Paul, Sacramento, Calif.
Robert E. Riordan, Des Moines, Iowa.

CANCELLATION

Marvin M. Prentice, Olympia, Wash.

SEPARATED (MILITARY SERVICE)

Maurice Verplank, Mexico City, Mex.

SEPARATED (INEFFICIENCY)

Robert H. Williams, South St. Paul, Minn.

RESIGNATIONS

Roger W. Baker, Jacksonville, Fla.
Cornelius A. Barry, San Francisco, Calif.
Henry Birne, Mexico City, Mex.
Robert N. Gray, Jr., Fort Worth, Texas.
Daniel Mabel, Providence, R. I.
Sidney I. Melman, Philadelphia, Pa.
Everil D. Merkle, Mexico City, Mex.
Waldo H. Palmer, Jacksonville, Fla.

RETIREMENTS

John F. Chipman, Louisville, Ky.
Arthur B. Crawford, Amsterdam, Holland.
Nicholas E. Dutra, San Antonio, Texas.
I. Newton Habecker, Springfield, Ill.
Isaac H. Kaufman, Buffalo, N. Y.
James F. Park, West Plains, Mo.
Leo L. Shelling, St. Joseph, Mo.
Wilbur C. Smith, Ottumwa, Iowa.
Alva C. Stein, Cleveland, Ohio.
William S. Trigg, Richmond, Va.

DEATHS

Guy P. Everly, Columbus, Ohio.
John A. Phillips, Denver, Colo.
Arthur F. Van Mever, Sioux Falls, S. Dak.

TRANSFERS

Harry L. Butler, from Rochester, N. Y., to Brier Hill, N. Y.
Jerry J. Callis, from Amsterdam, Holland, to Beltsville, Md.
Howard B. Davis, from Hartford, Conn., to Boston, Mass.
Clarence O. Finch, from Olympia, Wash., to Mexico City, Mex.

Wm. A. Goodfellow, from Cheyenne, Wyo., to San Antonio, Texas.

Beauford L. Gray, from Fort Dodge, Iowa, to West Fargo, N. Dak.

Howard H. Hall, from Mexico City, Mex., to Columbus, Ohio.

Thomas C. Hinkle, Jr., from St. Louis, Mo., to Harrisburg, Pa.

Harlow K. Hudson, from Topeka, Kan., to Kansas City, Kan.

Milo L. Johnson, from Amsterdam, Holland, to Topeka, Kan.

Robert P. Jones, from Sioux City, Iowa, to Columbus, Ohio.

J. Howard Slack, from Helena, Mont., to Mexico City, Mex.

Myron V. Springstun, from Clinton, N. Car., to Richmond, Va.

Charles Walter, from Topeka, Kan., to Omaha, Neb.

Edward H. Williams, from Brier Hill, N. Y., to Clinton, N. Car.

APPLICATIONS

Applicants — Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent associations shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative By-Laws.

ANDRIES, EDWARD P.

Box 1113, Aberdeen, S. Dak.

D.V.M., Ontario Veterinary College, 1948.

BASSECHES, OSCAR H.

443 Kennedy Street, N. W., Washington D. C.

D.V.M., U. S. College of Veterinary Surgeons, 1918.

BLACKFORD, DARRYL FLOYD

4205 Oberlin Ave., Lorain, Ohio.

D.V.M., Ohio State University, 1946.

BLOUNT, CARL ASHTON, JR.

P. O. Box 406, Waynesboro, Ga.

D.V.M., University of Georgia, 1950.

BLUM, FRED E.

96 Erie St., Stratford, Ont.

B.V.Sc., Ontario Veterinary College, 1941.

BRACK, W. G. A.

Elmvale, Ont.

D.V.M., Ontario Veterinary College, 1949.

BROWER, EDWIN LEWIS

105 W. Main St., Freehold, N. J.

D.V.M., Kansas State College, 1930.

BURKE, THOMAS S.

2205 Douglass Ave., Windsor, Ont.

B.V.Sc., Ontario Veterinary College, 1918.

CAUDLE, HAROLD C.

Johnsons Tourist Court, Athens, Tenn.

D.V.M., Alabama Polytechnic Institute, 1945.

CHERRY, DONALD R.

12 York Street, Ottawa, Ont.

D.V.M., Ontario Veterinary College, 1945.

- DESMARAIS, LUCIEN
8905 Lajeunesse Ave., Montreal, Que.
D.V.M., Ecole de Médecine Vétérinaire de
la Province de Québec, 1950.
- DUFOUR, ALVIN CHARLES
116 Mountain St., La Grange, Ind.
D.V.M., Michigan State College, 1946.
- FISH, L. O.
Spencer, Ind.
D.V.M., Indiana Veterinary College, 1916.
- GAMBLE, DONALD M.
Maxville, Ont.
D.V.M., Ontario Veterinary College, 1939.
- GOODE, EDWIN ROBERT, JR.
5705 Pontiac St., Berwyn Heights, Md.
D.V.M., Alabama Polytechnic Institute, 1945.
- HELMOLDT, CHARLES F.
Box U-39, Storrs, Conn.
D.V.M., Michigan State College, 1938.
- FINCHMAN, HOWARD R.
Canal Winchester, Ohio.
D.V.M., Ohio State University, 1930.
- HORNBACKER, VERN G.
Rt. 1, Angola, Ind.
D.V.M., Michigan State College, 1943.
- LAFFER, THEODORE J.
7278 Milwaukee Ave., Niles, Ill.
D.V.M., Iowa State College, 1949.
- LASALLE, J. B. A.
Apt. 4, 276 Montreal Road, Eastview, Ottawa,
Ont.
D.V.M., Oka Veterinary College (University
of Montreal), 1937.
- MCPHEDRAN, JOHN ALEXANDER
Neepawa, Manitoba.
D.V.M., Ontario Veterinary College, 1950.
- PALLISTER, ERIC FOSTER
Ontario Veterinary College, Guelph, Ont.
D.V.M., Ontario Veterinary College, 1939.
- RISING-MOORE, F.
c/o Lincoln Hotel, Prince Albert, Sask.
D.V.M., Ontario Veterinary College, 1950.
- ROBSON, KEITH HEDLEY
Box 665, Selkirk, Manitoba.
D.V.M., Ontario Veterinary College, 1949.
- SAVAGE, JOHN GRANT
52 Pleasant, Waterville, Maine.
D.V.M., Ontario Veterinary College, 1948.
- TELEJOHN, ARTHUR L.
8108 Hammond Ave., Takoma Park 12, Md.
D.V.M., Kansas State College, 1936.
- VAN GORBER, LLOYD F.
12 E. 4th St., New Castle, Del.
D.V.M., Ontario Veterinary College, 1949.

Applicants — Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two suc-

cessive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorser.

First Listing

- LEON, MANUEL MUELLE
Hacienda Pachacayo, Pachacayo, Peru.
D.V.M., Universidad Nacional de La Plata,
1951.
Vouchers: Douglas F. Watson and Alexander
Ramirez.

AMONG THE STATES AND PROVINCES

California

Bay Counties Association Officers.—At the November meeting of the Bay Counties Veterinary Medical Association held in San Francisco, the following officers were elected for the ensuing year: Drs. R. P. Cope, Berkeley, president; Howard Carroll, San Francisco, vice-president; and Richard L. Stowe, San Francisco, secretary.

s/RICHARD L. STOWE, *Secretary*.

Connecticut

Dr. Smith Retires.—Dr. R. L. Smith (KCV '11), West Hartford, retired in December, 1951, as inspector in charge of the federal program in Connecticut for eradication of brucellosis and tuberculosis in livestock. Dr. Smith had held this position since 1920.

Delaware

State Association.—Twenty-six veterinarians and guests attended the annual meeting of the Delaware Veterinary Medical Association held at Dover on Dec. 7, 1951.

The program included the motion pictures, "Triple Threat," and "Outbreak," and the following speakers: **Drs. T. O. Roby**, Newark, who discussed the new hog cholera vaccines; **E. F. Waller**, University of Delaware, Newark, who presented a paper on infectious diseases of swine; and **Jacques Jenney**, University of Pennsylvania, Philadelphia, who spoke on fracture management in small animal practice.

The following officers were elected to serve the organization in 1952: Drs. J. L. Cherry, Dover, president; N. D. Roberts, Newark, vice-president; C. A. Woodhouse, Wilmington, secretary-treasurer. New members of the executive board are Drs. J. R. West, Milford, R. Sarde, Smyrna; and G. Rosenberger, Wilmington.

s/C. A. WOODHOUSE, *Secretary*.

District of Columbia

Dr. Price Elected President of American Society of Parasitologists.—Dr. Emmett W.

Price was unanimously elected president of the American Society of Parasitologists for the year 1952 at the meeting held in Chicago, Nov. 15-17, 1951. This is a noteworthy honor to have bestowed upon a member of the veterinary profession.

During the past fifteen years, Dr. Price has



Dr. Emmett W. Price

been assistant chief of the Zoological Division, Bureau of Animal Industry. He joined the Bureau in 1926. For seven years prior to that time, he was associate professor of pathology at the A. & M. College of Texas. In 1933, he served as zoologist on the Johnson-Smithsonian deep sea expedition to the Puerto Rican Deep.

Dr. Price received the D.V.M. degree from George Washington University in 1918; the M.S. degree from American University, 1931; and the Ph.D. from George Washington University in 1935.

Dr. Price has the distinguished record of having served as councilor for the American Society of Parasitologists for twelve consecutive years. He has also served as a member of the Research Council of the AVMA. He is a past president of the Helminthological Society of Washington and served nine years as one of the vice-presidents of the Washington Academy of Sciences. He is an active member of the District of Columbia Veterinary Medical Association.

In the field of parasitology, Dr. Price has devoted his major efforts to trematodes of domesticated and wild animals.

District Association.—The District of Columbia Veterinary Medical Association held its first quarterly meeting of 1952 at the Mayflower

Hotel on January 15. The following officers were installed for the ensuing year: Col. George L. Caldwell, president; Drs. E. Barnwell Smith, first vice-president; A. K. Kuttler, second vice-president; and Grant E. Blake, secretary-treasurer.

The program consisted of a panel on "Role of the Department of Agriculture in the Defense of Livestock and Crops Against Biological Warfare" with the following men participating: **Drs. M. R. Clarkson**, Agricultural Research Administration, moderator; **Asa Winter**, Bureau of Animal Industry; **Donald Miller**, Bureau of Animal Industry; **Mr. Kelvin Dorward**, entomologist, Bureau of Entomology and Plant Quarantine; and **Dr. Paul Miller**, plant pathologist, Bureau of Plant Industry, Soils and Agricultural Engineering.

S/GRANT E. BLAKE, Secretary.

Florida

Meat Inspection.—A law which became effective Jan. 1, 1952, makes it mandatory for all Florida slaughterers to operate under state inspection. Dr. J. V. Knapp, state veterinarian, is in charge of the program. Inspectors will inspect sanitary standards at plants as well as watching the quality of the meat processed.

S/E. M. NIGHBERT.

Personals.—Dr. and Mrs. John S. Bengston formerly of Chicago, have purchased a home in St. Petersburg and have joined the society of retired veterinarians which meets twice a week



Dr. and Mrs. John S. Bengston and their new home in St. Petersburg.

and has over 600 members. As a hobby, Dr. Bengston raises some of the rarer types of citrus fruits.

Dr. William F. Jackson (MSC '47), Lakeland, purchased Dr. K. R. Lewis' large and small animal hospital in August, 1951.

When Moving, Please Notify the AVMA

Illinois

State Association.—The seventieth annual convention of the Illinois State Veterinary Medical Association was held at the Hotel Sherman in Chicago on Jan. 23-25, 1952. Speakers who helped to make the scientific program an outstanding success were **Drs. C. R. Collins**, Dixon; **J. G. Hardenbergh**, Chicago, executive secretary of the AVMA; **Geo. Valley (Ph. D.)**, Bristol Laboratories, Syracuse, N. Y.; **R. O. Mudd**, Kankakee; **Robert Graham**, Urbana, dean of the University of Illinois College of Veterinary Medicine; **H. Preston Hoskins**, Evanston, editor of "The North American Veterinarian"; **G. J. MacLean**, Galesburg; **P. J. Meginnis**, Urbana; **R. V. Johnston**, Pitman Moore Co., Zionsville, Ind.; **C. D. Carpenter**, Chicago; **H. N. Howlett**, U. S. BAI, Springfield; **W. C. Logan**, U. S. BAI, Urbana; **H. P. Wessels**, Geneva; **William Munson**, Cambridge; **R. C. Klussendorf**, Commercial Solvents Corp., Terre Haute, Ind.; **E. T. Anderson**, Dixon; **L. T. Boley**, University of Illinois College of Veterinary Medicine, Urbana; **V. J. Novy**, Belleville; **M. Erdheim**, Grayslake; **Harlan E. Jensen**, Cleveland, Ohio; **A. B. Douglas**, Collinsville; **A. E. Broome (M.D.)**, Ontario Veterinary College, Guelph; **R. E. Witter**, University of Illinois College of Veterinary Medicine, Urbana; **E. C. Saunders**, Elgin; **D. S. Darlington**, River Forest; **R. L. Rudy**, Ohio State University College of Veterinary Medicine, Columbus; **R. J. Cyrog**, Skokie; **L. L. Fatherree (M.D.)**, Joliet; **S. W. Haigler**, St. Louis, Mo.; **L. J. Haverkamp (Ph.D.)**, Wilson and Co., Chicago; **E. M. Baldwin**, Omaha, Neb.; **R. A. Thompson**, Springfield; **M. E. Boyer**, Freeport; **Lee T. Railsback**, Ellsworth, Minn.; **W. S. Gochenour**, Pitman Moore, Zionsville, Ind.; **J. D. Ray**, Corn States Serum Co., Omaha, Neb.; **A. A. Turner**, Freeport; **R. C. Patterson**, Ottawa; **C. C. Morill**, University of Illinois College of Veterinary Medicine, Urbana; **R. H. Thompson**, Corn Belt Serum Co., East St. Louis; **C. F. Murphy**, Buda; **W. H. Riser**, Skokie; **C. A. Lemen**, Warrensburg; **F. W. Milke**, Milwaukee, Wis.; **G. S. Elwood**, Chicago; **B. S. Schweigert (Ph.D.)**, Meat Institute Foundation, Chicago; **R. E. Storm**, Evanston; **R. H. Hollis**, Abbott Laboratories, North Chicago; **R. F. McGrew (B.Pharm.)**, Abbott Laboratories, North Chicago; **J. K. Bone**, Chicago; **Col. Wayne O. Kester**, Veterinary Division, U. S. Air Force, Washington, D. C.; **Col. John L. Owens**, Fifth Army Veterinarian, Chicago; **F. E. Eads**, Parke, Davis and Co., Detroit, Mich.; **Mr. Jas. C. Leary**, director of Public Relations, Illinois State Medical Society, Chicago; and **Mr. Raymond B. Morris**, practicing attorney, Chicago.

New officers of the Association are **Drs. C. H. Horstman**, Collinsville, president; **A. G. Misener**, Chicago, reelected secretary-treasurer;

and **C. A. Lemen**, Warrensburg, president-elect.
S/A. G. MISENER, Secretary.

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Personel.—Capt. Merl A. Parlin (MSC '45), Oglesby, has been assigned to the Twelfth Air Force in Wiesbaden, Germany, while awaiting a further assignment in France. Until called to active duty with the Air Force in January, 1951, Captain Parlin practiced in Oglesby.

Indiana

Indiana and Illinois Association.—The Indiana and Illinois Veterinary Medical Association met at the Rod and Gun Club near Bruceville, Ind., on Dec. 13, 1951, to hear **Dr. J. L. Axby**, Indianapolis, discuss better citizenship, and **Dr. T. Jones**, in charge of BAI work in Indiana, and **Dr. Eichhorn**, in charge of tuberculosis control in Indiana, speak on the testing of cattle.

Dr. J. E. Carrico, Bicknell, was in charge of arrangements for this meeting.

S/J. L. KIXMILLER, Resident Secretary.

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Northeastern Association.—At a business meeting of the Northeastern (Ind.) Veterinary Medical Association on Dec. 11, 1951, in Fort Wayne, the following officers were elected for the ensuing year: **Drs. V. K. McMahan**, Fort Wayne, president; **Clark Waterfall**, Columbia City, vice-president; and **C. W. Gunn**, Fort Wayne, secretary-treasurer. After a brief talk by **Dr. G. R. Oldham**, president of the Indiana Veterinary Medical Association, members enjoyed a Christmas party.

S/J. L. KIXMILLER, Resident Secretary.

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Wabash Valley Association.—At the Dec. 19, 1951, meeting of the Wabash Valley Veterinary Medical Association, the following officers were elected: **Drs. R. C. Smith**, Kokomo, president; **D. J. Myers**, Wabash, vice-president; and **R. M. Hafner**, Huntington, secretary-treasurer.

After the business meeting, members enjoyed a Christmas party.

S/J. L. KIXMILLER, Resident Secretary.

Iowa

Personal.—Dr. Robert C. Jacobs (ISC '42), who was raised near Paullina, has purchased the practice of Dr. W. A. Aitken, who has accepted appointment as editor-in-chief of AVMA publications. After serving in the Army, Dr. Jacobs established a practice at Montevideo, Minn. For the last three years, he has worked with the foot-and-mouth disease control program in Mexico.

Kentucky

Personal.—Dr. T. J. Stearns (CVC '16), Louisville, was elected chairman of the board

of trustees by the trustees of the City of Norbourne Estates. Currently secretary-treasurer of the Kentucky Veterinary Medical Association and president of the Jefferson County Veterinary Society, Dr. Stearns also finds time to take an active part in civic activities of his community.

Maine

State Association.—At the annual meeting of the Maine Veterinary Medical Association, held in Waterville on Jan. 9, 1952, the following officers were elected: Drs. Arlan E. Freeman, Rumford, president; Robert E. Ingham, Waterville, vice-president; and Stanford D. Merrill, Augusta, secretary-treasurer. The following men were elected to the executive committee: Drs. E. C. Moore, Lewiston; P. R. Brown, Belfast; and J. A. Elliott, Bangor.

The secretary's annual report showed a membership of 61, with an average attendance of 51 at the banquets. Meetings are held in January, April, July, and October. Six new members were admitted during the year.

After the business meeting, a question and answer period was held in which previously submitted questions on fees, mastitis, pyelonephritis, nervous acetonemia, tetanus, winter dysentery, and social security were discussed.

Commissioner of Agriculture **Fred J. Nutter** was the speaker of the evening and his subject was "The Future of the Livestock and Poultry Industries in Maine."

S/STANFORD D. MERRILL, *Secretary.*

Manitoba

Dr. Chamberlayne Appointed to Staff of PASB.—Dr. Earl C. Chamberlayne (ONT '41), Winnipeg, was appointed public health veterinarian on the staff of the Pan American Sani-



Dr. E. C. Chamberlayne

tary Bureau, Regional Office of the World Health Organization in January, 1952. He was assigned to the Bureau's zone office in Lima, Peru, as area supervisor in veterinary public health. His area of operation embraces Peru, Bolivia, Ecuador, Venezuela, Colombia, the British, French, and Dutch Guianas, and the Netherlands Antilles.

Dr. Chamberlayne is on leave from his position as director of food control in the Manitoba Provincial Ministry of Health and Public Welfare in Winnipeg, where he developed the administration of a province-wide program of environmental health through the Manitoba health units that have served as a model elsewhere in Canada. He was recently appointed as a member of the AVMA Committee on Public Relations.

S/HAROLD BALLOU, *Chief,*
Office of Public Information.

Massachusetts

State Association.—The annual meeting of the Massachusetts Veterinary Association was held at the Hotel Beaconsfield, Brookline, on Jan. 23, 1952. **Dr. Ernest M. Daland (M.D.)**, chief of staff of the Pondville Hospital and president of the Massachusetts Cancer Association, was the guest speaker. He discussed "Radiation Injuries."

S/C. LAWRENCE BLAKELY, *Secretary.*

Michigan

Southeastern Association.—The Southeastern Michigan Veterinary Medical Association met at the Herman Kiefer Hospital in Detroit on Jan. 9, 1952. The program consisted of a discussion of ethics, and a committee was appointed to supervise telephone listings in the Detroit area. Officers elected at this meeting are Drs. J. McEvoy, Royal Oak, president; M. Cherin, Detroit, vice-president; C. Hodder, Detroit, treasurer; and S. Kelly, Detroit, secretary. The following were elected to the executive board: Drs. A. A. Boden, Dearborn; D. J. Francisco, Detroit; I. H. Wood, Mt. Clement; and G. Meyer, Detroit.

S/S. KELLY, *Secretary.*

Minnesota

Veterinary Library Receives Gift from State Auxiliary.—During 1951, the Women's Auxiliary to the Minnesota State Veterinary Medical Society donated \$100 for the purchase of books to be placed in the veterinary library of the University of Minnesota School of Veterinary Medicine. A gift of this kind is especially welcome since both students and staff are the benefactors. This sum is gratefully acknowledged and much appreciated by the recipients.

Staff Appointments at University.—Early in October, 1951, Dr. Harry C. Rowsell (OVC '49) joined the staff of the School of Veterinary Medicine as a research fellow in the Department of Pathology. Prior to coming to Minnesota, Dr. Rowsell received his D.V.P.H. degree in 1950 from the University of Toronto. He then joined the Department of Bacteriology and Food Hygiene at the Ontario Veterinary College.

Dr. Frank Sauer (OVC '51) joined the clinic staff as a research assistant and resident intern in the veterinary clinic.

Missouri

Kansas City Small Animal Hospital Association.—The following officers were elected at a business meeting of the Kansas City Small Animal Hospital Association on Dec. 3, 1951: Drs. T. M. Eagle, North Kansas City, president; Richard Wright, Kansas City, Mo., vice-president; and G. A. Hamilton, Kansas City, Kan., secretary-treasurer. After the business meeting, colored motion pictures of medical surgical techniques were shown, including one on cesarean section.

S/T. M. EAGLE, *President*.

New York

Conference for Veterinarians.—The New York State Veterinary College forty-fourth annual conference for veterinarians was held Jan. 9-11, 1952, at the College.

The guest speakers at the conference were Drs. R. W. Bratton, Cornell University, Ithaca; A. B. Christian, Biltmore Dairies, Biltmore, N. Car.; R. J. Garbutt, New York City; P. S. Gelb (M.D.), executive secretary, New York State Society for Medical Research, Inc., New York City; W. Hansel, Cornell University; R. B. McClelland, Buffalo; J. I. Robinson, Tonawanda; L. Z. Saunders, Army Chemical Center, Md.; W. S. Stone, New York State Department of Agriculture and Markets, Albany; John R. Wells, West Palm Beach, Fla., president of the AVMA; R. R. Wilson, Cornell University; R. E. Witter, University of Illinois, Urbana; and C. P. Zepp, Jr., New York City.

Speakers from the staff of the New York State Veterinary College were Drs. D. T. Baker; J. A. Baker, J. Bentinck-Smith; G. C. Christensen; Gordon Danks; R. W. Dougherty; H. H. Dukes; J. A. Dye; F. G. Fielder; M. G. Fincher; R. Gibbens; J. H. Gillespie; H. L. Gilman; R. E. Habel; W. A. Hagan; B. F. Hoerlein; S. D. Johnson; E. P. Leonard; P. P. Levine; J. L. Mara; K. McEntee; M. E. Miller; L. L. Nangeroni; P. Olafson; C. G. Rickard; S. J. Roberts; E. W. Tucker; J. H. Whitlock; and C. J. York.

The discussions and demonstrations brought to those in attendance up-to-the minute infor-

mation on surgical techniques and treatment of many of the disease conditions of large and small animals.

S/W. A. HAGAN, *Dean*.

New York City Association.—The regular meeting of the Veterinary Medical Association of New York City, Inc., was held at the New York Academy of Sciences, 2 East 63 Street, on Dec. 5, 1951.

The motion picture "Inside the Cell" was shown through the courtesy of the Department of the Army.

Mr. L. S. Green, of L. S. Green Associates, New York City, presented a paper on "Canine Asthma Due to Dust." Dr. John R. Whittier (M.D.), research assistant, Columbia University, Department of Neurology, discussed "Animal Dyskinesia" with illustrations.

Dr. Charles E. Fletcher was installed as president, and the following officers and committeemen were elected for 1952: Drs. Henry E. Grossman, president-elect; C. R. Schroeder, secretary-treasurer; Lester R. Barto, Robert L. Burkhart, S. Eugene Herman, executive committee; C. P. Zepp, Jr., Milton W. Firestone, Irene Kraft, Sidney Nathanson, Arthur F. North, Jr., Stanley Penny, John A. Ward, and F. O. Wright, committee on ethics.

At the Jan. 2, 1952, meeting of the Association, the motion picture "Demonstration of Cushing's Experiment in the Dog" was shown through the courtesy of the Department of the Army. Dr. Mark W. Allam, School of Veterinary Medicine, University of Pennsylvania, presented a paper on "Thoracic Surgery," which was well illustrated by motion pictures. Dr. Mortimer Kramer, New York City, and Dr. Daniel T. Woolfe, Peekskill, were introduced as new members.

S/C. R. SCHROEDER, *Secretary*.

North Carolina

Central Carolina Association.—On Jan. 9, 1952, the Central Carolina Veterinary Medical Association met in Greensboro. The program consisted of a round-table discussion.

S/Clyde W. Young, *Resident Secretary*.

Oregon

State Association Officers.—New officers of the Oregon State Veterinary Medical Association are Drs. Carl R. Howarth, St. Helens, president; C. F. Milleson, Portland, vice-president; Edward L. Holden, Oswego, secretary; and Roy H. Peterson, Tillamook, resident secretary.

S/C. R. HOWARTH, *President*.

Pennsylvania

Keystone Association.—The motion picture, "The Science of Milk Production," was shown at the January 23 meeting of the Keystone

Veterinary Medical Association in the auditorium of the Philadelphia County Medical Society Building in Philadelphia.

S/RAYMOND C. SNYDER, *Secretary*.

• • •
Northwestern Association.—The Northwestern Pennsylvania Veterinary Medical Association met at the Beacon Inn, Meadville, on Jan. 15, 1952, to hear **Dr. H. E. Jensen**, Cleveland, Ohio, discuss "Modern Approach to Clinical Veterinary Medicine."

S/A. M. LANGDON, *Secretary*.

• • •
Western Association.—The Western Pennsylvania Veterinary Medical Association met on Jan. 16, 1952, at the Fort Pitt Hotel, Pittsburgh. **Dr. Roy D. Hoffman**, Bedford, was the guest speaker.

Officers elected at this meeting are **Drs. William Markle**, West Newton, president; **C. E. Gundlach**, Washington, vice-president; **K. L. Bollens**, Pittsburgh, secretary-treasurer. **Dr. Markle** was elected delegate to the annual meeting of the AVMA in Atlantic City.

S/GEO. B. SCHUEY, *Secretary*.

Puerto Rico

Association Officers.—At a business meeting of the Puerto Rico Veterinary Medical Association in December, 1951, the following officers were elected: **Drs. Enrique E. Toro**, San Juan, president; **José D. Rivera Anaya**, Roosevelt, reelected secretary-treasurer; and **O. A. Lopez-Pacheco**, Hato-Rey, vice-president.

S/O. A. LOPEZ-PACHECO,
Resident Territorial Secretary.

Utah

Intermountain Association.—The twenty-fourth annual meeting of the Intermountain Veterinary Medical Association was held Jan. 21-23, 1952, at the Newhouse Hotel in Salt Lake City.

The following speakers appeared on the program: **Drs. Wayne Binns**, Utah State Agricultural College, Logan; **Frank Bloom**, Long Island College of Medicine, Flushing, N. Y.; **W. L. Boyd**, director, School of Veterinary Medicine, University of Minnesota, St. Paul, and president-elect of the AVMA; **M. R. Clarkson**, Agricultural Research Administration, Washington, D. C.; **R. W. Davis**, Colorado A. & M. College, Fort Collins; **W. F. Fisher**, U. S. BAI, Reno, Nev.; **J. C. Flint**, Salt Lake City; **R. E. Fuechsel**, Price, Utah; **Phil H. Graves**, Idaho Falls, Idaho; **Max Harvey**, Pearl River, N. Y.; **Rue Jensen**, Colorado A. & M. College, Fort Collins; **E. E. Maas**, U. S. BAI, Reno, Nev.; **L. C. Moss**, Colorado A. & M. College; **Roy A. Nipko**, Salt Lake City; **W. M. Pounden**, Ohio Agricultural Experiment Station, Wooster; **H. E. Schaulis**, U. S. BAI, Denver; **Lee Seghetti**, Montana

State College, Bozeman; and **H. F. Wilkins**, state veterinary surgeon, Livestock Sanitary Board, Helena, Mont.

Some of the subjects discussed were diseases of livestock peculiar to the intermountain region which may be studied jointly by cooperating states; practical operational procedures in tuberculosis and brucellosis eradication in the intermountain region; canine interstitial nephritis; poisoning in cattle from consumption of soy bean extracted with trichlorethylene; new hog cholera vaccines; coordinated disease control under state supervision; and other current problems in diseases of large and small animals.

S/M. L. MINER, *Secretary*.

Washington

South Puget Sound Association.—The regular monthly meeting of the South Puget Sound Veterinary Association was held at the University-Union Club in Tacoma on Nov. 8, 1951, with 26 members and guests present for the meeting and the dinner.

Dr. Marlowe Jones, Tacoma, president of the Association, presided over the meeting. **Drs. J. D. Stevens**, president, Washington State Veterinary Association, discussed bovine mastitis, and **Dr. A. J. Ryncarz**, Tacoma, led a panel discussion on canine otitis. Other panel members were **Drs. G. Staggs**, **Bernard Pinckney**, and **Henry Burke**, all of Tacoma.

S/IRWIN ERICKSON, *Secretary*.

EMERGENCY PLANNING

PERSONNEL

Information bulletin vol. II, No. 12 from the National Advisory Committee to the Selective Service System furnishes the following information:

1) PRIORITIES

An individual who enjoyed a IV-F classification throughout his attendance in school during the period between Dec. 7, 1941, and March 31, 1947, is not considered to have been deferred, and therefore is in priority 3. In this connection it should be noted that many of them held, at various times, different classifications. In some cases, at one time a IV-F; at another time, a II-A. If they held a II-A classification at any time during this specified period and were pursuing their educational endeavors, they are considered to have been deferred for that purpose.

2) ALIEN VETERINARIANS

Citizens of Canada and some other countries which do not have special treaty arrangements who enter this country as aliens on a visa to accept employment and who hold the degree of Doctor of Veterinary Medicine, must register as special registrants within five days of the time of their entry into this country if they have not attained their fiftieth birthday.

Such aliens who have not attained their twenty-sixth birthday must also register as regular registrants within six months from the date of their entry into this country. After registration and unless otherwise entitled to a deferment, they will be liable for induction into the Armed Forces on the same basis as citizens of the United States.

In addition, as special registrants who presumably had

no prior service or training during World War II in the Armed Forces of the United States, they fall into priority 3.

VETERINARY MILITARY SERVICE

Unit Cited for Food Inspection in Korea.—

A five-man veterinary detachment of the Army Medical Service received the Army's second highest unit award for inspecting 69,000,000 lb. of rations in six months in Korea.

The Meritorious Unit Commendation, first of its kind for an Army veterinary unit in the Korean conflict, was made to the 106th Veterinary Food Inspection Detachment for "outstanding devotion and superior performance" in setting up and operating an inspection network over a 100-mile area centered on the most forward supply point in the Korean combat zone.

From March 24 to Sept. 23, 1951, the 106th detachment "efficiently processed 69,000,000 lb. of rations in order to assure the wholesomeness of the food so vitally necessary to the combat effectiveness of the United Nations troops in Korea."

The unit, headed by Capt. Alan Zahn (UP '48) of Union City, N. J., received the award from Gen. James A. Van Fleet, commander of the Eighth Army.

• • •

Colonel Owens Assigned to Fifth Army.—

Col. John L. Owens (COL '26), U. S. Army, director for two years of veterinary service at the Medical Field Service School, Fort Sam Houston, Texas, was assigned in January, 1952, to the Fifth Army as chief veterinarian, with headquarters in Chicago.

Colonel Owens has been in Army service for twenty-five years, and holds the legion of Merit award for service as a veterinary officer in the southwest Pacific area during World War II.

MARRIAGES

Dr. William F. Jackson (MSC '47), Lakeland, Fla., to Miss Barbara Mayes on Nov. 24, 1951.

BIRTHS

Dr. (COL '46) and Mrs. Leon Slatko, Palestine, Texas, announce the birth of a son, Malcolm Paul, on Dec. 2, 1951.

Dr. (ISC '42) and Mrs. F. L. Gentile, Milwaukee, Wis., announce the birth of a daughter on Dec. 3, 1951.

Dr. (ISC '38) and Mrs. S. S. Bjornson, Union Stockyards, West Fargo, N. Dak., announce the birth of a son on Nov. 6, 1951. Mrs. Bjornson is the daughter of Dr. John Dinwoodie (UP '13), Devils Lake, N. Dak.

DEATHS

★J. H. Bailey (WSC '16), 62, Portland, Ore., died Oct. 3, 1951. Dr. Bailey conducted a large animal practice in Palouse and Colfax, Wash., from 1916 to 1926, and then established a mixed practice in Portland, where he practiced until his death.

A member of the AVMA, the Oregon Veterinary Medical Association, and Alpha Psi, he had been active in association work.

Dr. Bailey is survived by his widow, Neva, and a daughter.

★Frank J. Cote (OVC '26), 51, Guelph, Ont., died on Jan. 12, 1952. He was head of the small animal clinic and registrar at Ontario Veterinary College. Born July 1, 1900, at Guelph, Dr. Cote attended St. Stanislaus School and Guelph Collegiate Institute and then enrolled at Ontario Veterinary College, from which he received the B. V. S. degree in 1926. He practiced for a time and then was named veterinary inspector for Guelph. He later formed a partnership with Dr. K. B. Rowe but gave this up when he became head of the small animal department at the College where he had previously been an instructor.

Dr. Cote was a past president of the Ontario Veterinary Association, a member of the Canadian Veterinary Medical Association, and of the AVMA which he joined in 1929. He served in the reserve army in World War II and had been an executive member of the Guelph Cross-Country and Road Racing Association. He is survived by his wife, six sons, three daughters, his mother, two sisters, and two brothers. Funeral services were held at the Catholic Church in Guelph on January 15.

★Hiram P. Eves (UP '87), 89, George School, Pa., died on Dec. 25, 1951. He had been in failing health for several years. Born June 15, 1862, in Nether Providence Township, Delaware County, Pennsylvania, Dr. Eves was a member of the first class to be graduated from the School of Veterinary Medicine, University of Pennsylvania, and was its oldest living alumnus. Following graduation, he practiced in Chester, Pa., for a short time and then moved to Wilmington, Del., where he conducted a general practice until 1942, when he retired and, later, went to live at George School, Pa.

Dr. Eves joined the AVMA in 1889 and was made an honor roll member in 1939 after fifty years of continuous good standing. He is survived by his son, William, vice-principal of George School.

★Garland J. Hart (TEX '49), 27, Camden, Ark., died July 26, 1951, at Ft. Roats Veterans Hospital, North Little Rock. Dr. Hart was a member of the AVMA. He is survived by his widow and one son.

★Indicates members of the AVMA.



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COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

South Central Texas Veterinary Association. Cancer eye—pink eye conference. Victoria College, Victoria, Texas, March 15, 1952. U. E. Marney, 101 Congress St., San Antonio, Texas, correspondent.

State College of Washington. Annual short course for veterinarians. Pullman, Wash., April 10-11, 1952. Richard L. Ott, College of Veterinary Medicine, State College of Washington, Pullman, Wash., chairman.

Northern Illinois Veterinary Medical Association. Annual spring meeting. Faust Hotel, Rockford, Ill., April 16, 1952. L. W. Derrer, Mount Carroll, Ill., secretary.

North Central Iowa Veterinary Medical Association. Annual meeting. Warden Hotel, Fort Dodge, Iowa, April 17, 1952, 10:00 a.m. to 5:00 p.m. B. J. Gray, Box 797, Fort Dodge, Iowa, secretary.

Southeast Missouri Veterinary Medical Association. Spring meeting. Kennett, Mo., April 18, 1952. F. A. Stepp, Sikeston, Mo., secretary.

Oklahoma Conference for Veterinarians. School of Veterinary Medicine, Oklahoma A. & M. College, Stillwater, Okla., May 5-6, 1952. D. R. Peterson, professor and head, Department of Veterinary Anatomy.

Alabama Polytechnic Institute. Annual conference for veterinarians. Alabama Polytechnic Institute, Auburn, Ala., June 5-7, 1952. R. S. Sugg, dean.

Kansas State College. Annual Conference for veterinarians. Kansas State College, Manhattan, Kan., June 6-7, 1952. E. E. Leasure, dean, School of Veterinary Medicine.

Georgia Veterinary Medical Association. Annual meeting. Hotel Oglethorpe, Savannah, Ga., June 15-17, 1952. Chas. C. Rife, 420 Edgewood Ave., N.E., Atlanta, Ga., secretary.

North Carolina State Veterinary Medical Association. Annual meeting. Ocean King Hotel, Atlantic Beach, Morehead City, N. Car., June 16-17, 1952. Clyde W. Young, Mocksville, N. Car., secretary.

American Veterinary Medical Association. Annual meeting. Ambassador Hotel, Atlantic City, N. J., June 23-26, 1952. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Kentucky Veterinary Medical Association. Annual meeting. Seelbach Hotel, Louisville, Ky.,

July 23-24, 1952. T. J. Stearns, Room 216, Livestock Exchange Bldg., Bourbon Stockyards, Louisville, Ky., secretary.

New York State Veterinary Medical Society. Annual meeting. The Sagamore, Bolton Landing on Lake George, N. Y., Sept. 9-12, 1952. J. S. Halat, 804 Varick St., Utica, N. Y., secretary.

United States Livestock Sanitary Association. Annual meeting. Hotel Seelbach, Louisville, Ky., Oct. 29-31, 1952. R. A. Hendershott, 1 West State St., Trenton 8, N. J., secretary. Copies of the Annual Proceedings of the U. S. L.S.A. are available at \$5 per copy.

Regularly Scheduled Meetings

Bay Counties Veterinary Medical Association, the second Tuesday of each month. Richard L. Stowe, 149 Otsego Ave., San Francisco, Calif., secretary.

Cedar Valley Veterinary Association, the second Monday of each month (except July and August) at Black's Tea Room, Waterloo. F. E. Brutsman, Traer, Iowa, secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. W. E. Smith, 516 Oatman, Sanger, Calif., secretary.

Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro. Mr. Earl D. Adams, Greensboro, N. Car., secretary.

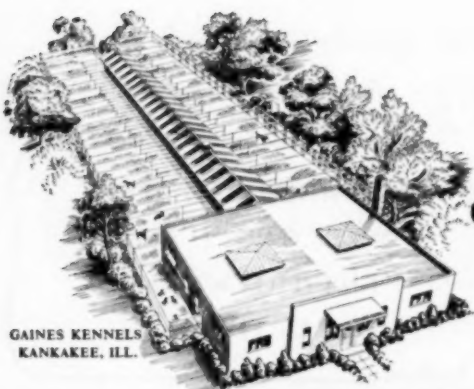
Chicago Veterinary Medical Association, the

(Continued on p. 38)



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(COMING MEETINGS—continued from p. 34)

second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary. Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. V. D. Ladwig, Sac City, Iowa, secretary.

Cuyahoga County (Cleveland, Ohio) Veterinary Medical Association, the first Wednesday of each month—September through May (except January)—at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Roger W. Grundish, 4217 Mayfield Road, South Euclid 21, Ohio, secretary.

East Bay Veterinary Medical Association, bi-monthly, the fourth Wednesday. Robert Clemens, 23352 Orchard, Hayward, Calif., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.

Greater St. Louis Veterinary Medical Association. Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Sunday evening of even-numbered months at the Jefferson Hotel, Peoria, Ill. S. M. McCully, Lacon, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel

(Continued on p. 40)



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(COMING MEETINGS—continued from p. 38)

Continental. T. M. Eagle, Parkville, Route 2, Mo., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curtis, 70 Central Ave., Kansas City 18, Kan., secretary.

Kern County Veterinary Medical Association, the first Thursday of each month. Richard A. Stiern, 17 Niles St., Bakersfield, Calif., secretary.

Keystone Veterinary Medical Association, the Philadelphia County Medical Society Building, 301 S. 21st Street, Philadelphia, Pa., on the fourth Wednesday of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

Kyowva Veterinary Medical Association, the second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Karl Mayer, 1531 Fourth Ave., Huntington, W. Va., secretary.

Maricopa County Veterinary Association, the second Tuesday of each month, Charles J. Prechal,

(Continued on p. 42)

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- 1722 East Almeria Road, Phoenix, Ariz., secretary.
- Metropolitan New Jersey Veterinary Medical Association, the third Wednesday night of each month from October through June, at the Hotel Essex House, Newark, N. J. Myron S. Arlein, 2172 Millburn Ave., Maplewood, N. J., secretary.
- Michiana Veterinary Medical Association, the second Thursday of each month. Write R. W. Worley, secretary, 3224 L.W.W., South Bend, Ind., for location.
- Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.
- Mid-Coast Veterinary Medical Association, the first Thursday of every even month. C. Edward Taylor, 2146 S. Broad St., San Luis Obispo, Calif., secretary.
- Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.
- Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San Luis Obispo, Calif., secretary.
- New Castle County Veterinary Society, the second Wednesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. Harold Roberts, Paper Mill Road, Newark R3, Del., secretary.
- New York City, Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63 St., New York City. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.
- Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. Tom Hagan, Gen. Del., Escalon, Calif., secretary.
- Orange Belt Veterinary Medical Association, the second Monday of each month. Clark Stillinger, 1742 E. Holt Ave., Pomona, Calif., secretary.
- Orange County Veterinary Medical Association, bi-monthly. Donald E. Lind, 2643 N. Main, Santa Ana, Calif., secretary.
- Peninsula Veterinary Medical Association, the third Monday of each month. P. H. Hand, Box 1035, Millbrae, Calif., secretary.
- Piedmont Veterinary Medical Association, the

(Continued on p. 44)

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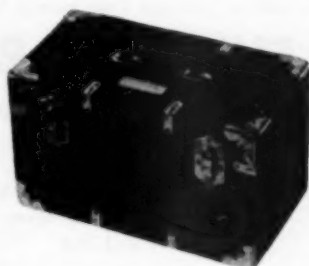
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(COMING MEETINGS—continued from p. 42)

last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. C. N. Cope-land, Hickory, N. Car., secretary.

Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month, in Tucson. R. W. Adami, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

Portland (Oregon) Veterinary Medical Association, the second Tuesday of each month, in the Auditorium of the Upjohn Company. Robert L. Hawley, 1001 N. W. Fourteenth Ave., Portland, Ore., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. John McChesney, 40 6th St., Petaluma, Calif., secretary.

Roanoke-Tar (N. Car.) Veterinary Medical Association, the first Friday of each month, time and place specified monthly. B. H. Brow, Weldon, N. Car., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. S. M. Foster, 430 College, Woodland, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. Warren J. Dedrick, 904 S. Lemon, El Cajon, Calif., secretary.

Santa Barbara-Ventura Counties Veterinary Medical Association, the second Friday of even months. Joe Ridgway, 1784 Thompson Blvd., Ventura, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. R. W. Sprowl, 11756 San Vicente Blvd., Los Angeles 49, Calif., secretary.

South Florida Veterinary Society, the third Tuesday of each month, 8:00 p.m., at the Peckway Skeet Club, Robert P. Knowles, 2936 N.W. 17th Ave., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. John Carnes, Muskogee, Okla., secretary.

Foreign Meetings

Second International Congress of Physiology and Pathology of Animal Reproduction and of Artificial Insemination. The Royal Veterinary and Agricultural College, Copenhagen, Denmark, July 7-11, 1952. Ed. Sorensen, the Royal Veterinary and Agricultural College, Bulowsvej 13. Copenhagen V, Denmark, secretary general.

Fifteenth International Veterinary Congress. Stockholm, Sweden, Aug. 9-15, 1953. Dr. L. de Blicke, Soestdijkseweg 113N., Bilthoven, Netherlands, secretary, Permanent Committee.

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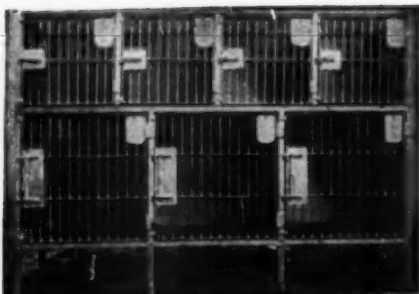
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JOURNAL OF THE AMERICAN
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SIRS:

This is in reply to Dr. E. J. Frick's article in opposition to ear cropping in the January issue.

Permit me to preface these remarks by saying that I regard Dr. Frick highly as an author, instructor and clinician, both from reading his articles, and from hearing word-of-mouth reports from former students and associates of his. In this instance, however, I feel that he has rather overstepped his field. By this I mean that I do not believe Dr. Frick is a dog man, and certainly not interested very deeply in those breeds in which ear cropping is practiced, else he would realize the value inherent in the process.

Appearance is a matter of personal taste and opinion, but Dr. Frick's definition of "experts" apparently differs widely with mine.

As far as the psychological aspect is concerned, I have worked with veterinarians who made every dog they so much as examined "hand shy," or should I say "veterinarian shy?" We have no dog whose ears we have cropped and cared for who does not actually enjoy coming in to see us. This, of course, discounts those few congenitally shy dogs one finds occasionally in any and all breeds.

From the financial standpoint I can only say that we refuse surgery we believe to be unnecessary, such as ventriculocordectomies. We do, however, find that we collect far more money, for easier, less exacting work, from the myriad ailments of long "down" ears than we ever do from cropping.

Any dog employed for "man" work (guard, attack, etc.) must have erect ears, both for the sake of a "sharp" expression, and for the greater necessity of not affording the malefactor a hand hold, which would enable a strong, courageous fugitive to render the dog helpless.

Perhaps the most idiotic argument usually advanced is that cropping is against the laws of nature. Nature, so far as I know, has produced nothing but erect eared members of the dog family. Man has been responsible for the down-eared varieties.

I am well aware that these are my own ideas, and that other dog people may have entirely different ones. I consider them, however, ample reason for taking a stand opposite Dr. Frick's, and, as a Doberman breeder, to come out sincerely and wholeheartedly for ear cropping in this type dog.

Very truly yours,

s/WILLIAM J. FULLER, D.V.M.
Detroit, Mich.

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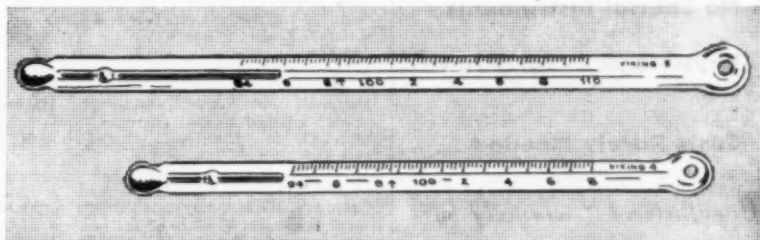
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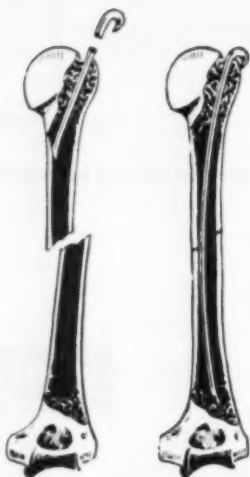
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WANTED—veterinarian under 35 years to travel in Midwest. Salary open. Address "Box R 19," c/o JOURNAL of the AVMA.

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STATE OF IDAHO, LIVESTOCK DISEASE CONTROL LABORATORY—wants laboratory veterinarian for diagnostic work. Address Bureau of Animal Industry, Room 108 Statehouse, Boise, Idaho, for information.

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WANTED—June graduate as assistant. Small animal hospital in New York City. Opportunity for surgical and medical experience. Regular hours; good salary. Address "Box R 5," c/o JOURNAL of the AVMA.

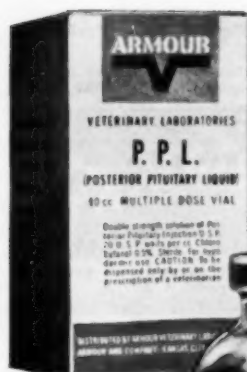
WANTED—veterinarian for Detroit veterinary hospital; small animals exclusively. Modern apartment furnished. Good salary and opportunity. Address Dr. H. M. Owen, 7737 Gratiot Ave., Detroit, Mich.

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(Continued on p. 50)



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(CLASSIFIED ADS—continued from p. 46)

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ASSISTANTSHIP wanted with small animal practitioner. Prefer position offering opportunities in exchange for hard work. June graduate, married, draft-exempt. Some experience. Address "Box R 17," c/o JOURNAL of the AVMA.

WANTED POSITION — veterinarian with small animal experience, graduate of Munich University, desires position as assistant to veterinarian with small animal hospital. Prefer northeastern part of the country. Address "Box R 15," c/o JOURNAL of the AVMA.

WANTED POSITION—internship or assistantship to general practitioner, preferably Midwest. Will graduate June, 1952, Washington State Veterinary College, Pullman. Good references. Address Mr. Peter Bidlake, c/o Veterinary Clinic, Pullman, Wash.

Coming senior wants summer job in small animal hospital, with salary inversely proportional to clinical experience gained. Address "Box R 10," c/o JOURNAL of the AVMA.

WANTED—assistantship leading to purchase or lease of small animal hospital in Midwest, preferably Ohio, by June, 1952 graduate of AVMA-approved school. Married; draft-exempt; small animal experience. Address "Box R 9," c/o JOURNAL of the AVMA.

WANTED POSITION—with busy small animal practitioner, leading to lease or purchase. June graduate of AVMA-approved school, married, veteran. Will consider any locality. Address "Box R 8," c/o JOURNAL of the AVMA.

WANTED POSITION—veterinary student, married, age 27, dependable, nonalcoholic, to graduate from AVMA-approved school in June, desires mixed practice leading to partnership with progressive veterinarian. Address "Box R 7," c/o JOURNAL of the AVMA.

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WANTED POSITION—1951 graduate of AVMA—

(Continued on p. 52)

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A puppy's eyes usually begin to open at 7 to 10 days. If the lids fail to open properly, it may be due to pus formations.

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Tyrosine	3.4%	3.9%
Tryptophan	1.3%	1.5%
Phenylalanine	4.9%	5.9%
Cystine	1.3%	1.0%
Methionine	3.3%	3.2%
Threonine	4.6%	4.4%
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Glycine	5.0%	—

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(CLASSIFIED ADS—continued from p. 50)

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WANTED—position leading to lease, partnership, or purchase of practice. Five years' experience. New York license. Married. Address "Box R 23," c/o JOURNAL of the AVMA.

Veterinarian, 32, graduated from Munich, Germany, five years' experience, first papers taken out, good knowledge of English, looking for any position with state or municipal authorities, research laboratories, or established veterinarian. Address "Box R 30," c/o JOURNAL of the AVMA.

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SMALL ANIMAL HOSPITAL WANTED—will purchase or consider partnership in an excellent small animal practice. Experienced, age 35. Prefer South, Southwest, or West. Address "Box R 29," c/o JOURNAL of the AVMA.

(Continued on p. 54)

Dr. Edward G. Batte Joins Calspray

The California Spray-Chemical Corporation has announced the appointment of Dr. Edward G. Batte (TEX '49) to the research and product development department in charge of livestock pest control. Dr. Batte will be the company's research veterinary entomologist.

A Texan, Dr. Batte received his D.V.M. degree from the Texas A. & M. College. He has also had field experience in the entomology department of Texas A. & M. and in the U.S. Army during World War II. Later, he was with the Texas State Health Department and Texas A. & M. in the Department of Veterinary Parasitology. Before joining California Spray-Chemical, Dr. Batte was with the University of Florida Agricultural Experiment Station, continuing his field work as associate veterinary parasitologist.

SELECTIVE CHEMOTHERAPY

Hypodermically and Orally

For antibacterial chemotherapy there are available a number of sulfonamide compounds.

Everyday Streptococcus Infections . . . Owing to its relatively good tolerance, Neoprontosil is of particular value in many streptococcus infections which are encountered in everyday veterinary practice, including septicemia, strangles, metritis, mastitis, distemper and meningitis. Relatively small doses have yielded very good results.

HOW SUPPLIED

For Oral Administration: Neoprontosil tablets of 5 grains, bottles of 50 and 500. (Caution: Not to be used for injection.)

For Parenteral Administration: Neoprontosil 5 per cent solution, bottles of 125 cc. and 250 cc. with rubber diaphragm stopper.

Winthrop Stearns INC. New York 18, N. Y. WINDSOR, ONT.

NEOPRONTOSIL, trademark reg. U. S. & Canada, brand of acetyl sulfamide

NEOPRONTOSIL®

For Everyday Streptococcus Infections

Ranch Record Veterinary Syringe



Superior quality veterinary syringes—Choice of ground glass barrel with metal plunger or rubber packing—Accurate dosage and smooth operation always assured.

Inexpensive replacement parts available.

Inquire at your nearest veterinary dealer or wholesaler concerning this outstanding product.

Sizes 2 cc. to 40 cc.

Boston Record Syringes

High quality syringe consisting of graduated, ground, resistance glass barrel with nickel silver plunger and strongly constructed metal parts. No Washers—No Binding Rubber Packings to interfere with smooth operation. Easily disassembled for sterilization.

Low In Cost

Boston Record Syringes create sales for the dealer and satisfaction for the user.

Repair exchanges available.
Sizes 1 cc. to 150 cc.



Literature Upon Request

Boston Instrument Mfg. Co., Inc.
50 Thayer St., Boston 18, Mass.

(CLASSIFIED ADS—continued from p. 52)

For Sale or Lease—Practices

FOR SALE—small animal hospital with all equipment, in rapidly growing southwestern city. Doing \$70,000 cash business annually. Warm, dry climate. Price \$65,000. Address "Box R 16," c/o JOURNAL of the AVMA.

Remittance must accompany order

RENT WITH OPTION TO BUY—completely equipped, modern, small animal hospital, with 4-room apartment. Located in good suburb of Philadelphia. Grossing over \$22,000 yearly and still growing. \$350 per month. Address "Box R 12," c/o JOURNAL of the AVMA.

FOR SALE—small animal practice and fully equipped hospital (x-ray). Good clientele on thoroughfare in residential section of Midwest city of over 300,000. \$12,500 cash. 1950 gross over \$9,000 (in second year of practice). Reason for sale: other interests. Address "Box R 2," c/o JOURNAL of the AVMA.

FOR SALE—general practice-large animal in northwestern Iowa. Practice includes new 2-bedroom home, garage with attached office, drugs, and instruments. Price \$14,500; \$9,500 cash. Address "Box R 21," c/o JOURNAL of the AVMA.

FOR SALE—well-established large animal practice 25 miles south of Des Moines, Iowa. Includes modern home and office building. For further information, address "Box R 25," c/o JOURNAL of the AVMA.

FOR SALE—small animal practice, with possibility of large animal work in the area. Situated in large city in northeastern Massachusetts on heavily traveled main road. Well equipped, G.E. portable x-ray. Grossing \$13,000. Asking \$4,500. Address "Box R 26," c/o JOURNAL of the AVMA.

Miscellaneous

AVMA key ring with one large Yale key, No. 4154, found and returned to AVMA office, 600 S. Michigan Ave., Chicago 5, Ill., by U.S. post office.

(Continued on p. 58)

Grant for Research on Bovine Mastitis

The Michigan State Board of Agriculture is the recipient of a grant in the amount of \$2,500 for a period of one year, in the support of clinical investigation of a new antibiotic agent for the treatment of bovine mastitis, according to Dr. W. P. Bolger, medical director of Sharp and Dohme.

This work is being done by Dr. A. R. Drury, assistant professor, School of Veterinary Medicine, Department of Surgery and Medicine, Michigan State College, East Lansing.

What should we feed him?

Is meat alone enough?

Are table scraps good for him?

Does he need change in his diet?

Is there a dog food that's really complete?



There's no question about it when you **RECOMMEND PARD**

Better for a dog than red raw meat

Most of the eager questions people ask about dog feeding can be answered in one word—"PARD"!

For with Pard, a dog needs nothing more, can get nothing better. Swift makes this famous dog food with all the good meat protein dogs love, plus all the other important nutrients they need.

Read the table and see why Swift's Pard is the perfectly balanced, complete food you can recommend with assurance!

A COMPLETE, BALANCED FOOD

containing:

Vitamins • Minerals • Meat Protein
Wheat • Irradiated Yeast • Fish Liver Oil
Barley • Soy Flour • Ground Edible Bone

Check these nutrients in a 1-lb. can of Pard against those in any other prepared dog food you know!

Protein	52.0 gms.	Vitamin A	550.0 units
Carbohydrates	45.7 gms.	Vitamin B	
Fat	14.7 gms.	Thiamine	1.41 mgs.
Iron	22.7 mgs.	Niacin	1.88 mgs.
Calcium	2.0 gms.	Wheat	10.2 mgs.
Phosphorus	1.59 gms.		

Energy: 100% of daily caloric needs for average-size (20-lb.) dog

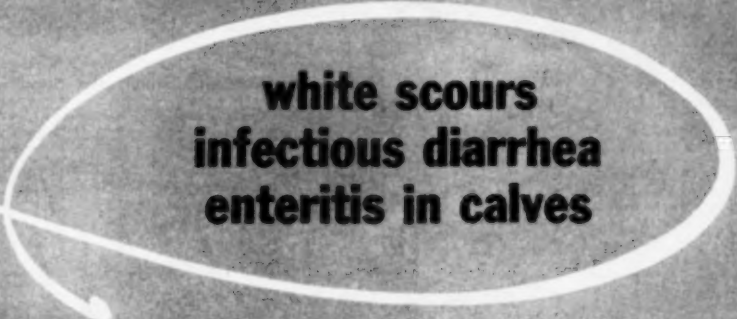


...for the treatment of



SQUIBB

COLIBACILLOSIS



**white scours
infectious diarrhea
enteritis in calves**

PENOVOXIL SQUIBB

Penovoxil Capsules are:

- **Effective**
- **Easy to administer**
- **Economical**

For treatment when infection is known to be present, two Penovoxil* Capsules are recommended three times daily for two to five days.

*"Penovoxil" is a trade-mark of E. R. Squibb & Sons

Penovoxil is also indicated for ulcerative enteritis and colitis. Penovoxil is suggested for use by both large and small animal practitioners.

Penovoxil Capsules Squibb are available to veterinarians in bottles of 25 and 100, priced at \$1.05 and \$3.90 respectively.

For further information, address Department JAV-3, E. R. Squibb & Sons, Veterinary and Animal Feeding Products Division, 745 Fifth Avenue, New York 22, N. Y.

- A NAME YOU CAN TRUST



Provides an accurate pattern against which to cut with knife or razor blade. Fits firmly, cannot move or slip when clamped into position. Made of non-rusting, light, cast aluminum, highly polished. Lasts a lifetime with minimum care. Simplicity of design and construction reduces possibility of breakage or mechanical failure. Forms immediately available to provide distinctive marking of these breeds:

- Boxer — postpaid \$15.00
- Boston Terrier — postpaid \$15.00
- Great Dane — postpaid \$15.00
- Doberman — postpaid \$15.00
- Set of above four — postpaid \$50.00

These patented "championship" forms are patterned after markings of winners of top honors in show competition. Forms for other breeds made on special order. Sold to veterinarians only. Send check or money order.



MacALLAN LABORATORIES

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BOVIDOTE



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ruminants

Each pound supplies: Magnesium oxide equivalent to 1 gal. milk of magnesia, sodium thiosulphate 8 oz., tartar emetic 180 gr., nux vomica 86 gr. Retains its red color when suspended in water.

Detoxicant, antacid, stimulant, mild laxative. Useful in intoxications, retarded bowel action, rumen stasis.

Field tested and approved by practitioners in green corn, soft corn and other forage poisonings.

Doz. pounds \$ 9.30	3 doz. \$27.00
6 doz. 52.20	25 lb. drum 17.00

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Select Pharmaceuticals for the
Veterinary Profession since 1918

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Canine genetics—how to choose stud—bloodlines, pedigrees, scientific dog breeding—Judy's Principles of Dog Breeding, 4th ed., \$4. On dogs, *Dog World* magazine, \$3 a year. Judy Publishing Co., 3325 Michigan Blvd., Chicago 16, Ill.

For Sale—Artificial Insemination Supplies

ARTIFICIAL INSEMINATION INSTRUMENTS
—Standard and custom made essential equipment and supplies. Sulfacitrate buffer tablets. Disposable plastic inseminating tubes, sterilized, \$1.00 per package of twenty. Address Breeder's Equipment Co., Flourtown, Pa.

Dr. Zeissig Joins Staff of Merck and Company

Dr. Alexander Zeissig, former veterinary consultant to the New York State Health Department, has joined the staff of Merck and Co., Inc., as director of the veterinary research department. His appointment is in line with the company's increased interest in animal nutrition and animal medicinal products.



Dr. Alexander Zeissig

Dr. Zeissig took undergraduate work in agriculture at Cornell University, and received his D.V.M. and Ph.D. degrees there in 1926 and 1930, respectively. He was formerly associate professor of bacteriology at the New York State Veterinary College, and during the past year was in South America with the Pan American Sanitary Bureau.

5 reasons why

Merameth

Sterile Solution
SODIUM SULFAMERAZINE 5% AND SODIUM SULFAMETHAZINE 5%

Promptly combats
Pneumonia, Hemorrhagic Septicemia, Foot Rot

- 1 Prompt therapeutic blood levels after parenteral administration.
- 2 Effective blood levels for 24 hours after a single intravenous dose.
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- 5 Marked decrease in acute and chronic toxicity.

MERAMETH® Sterile Solution is administered by intravenous or intraperitoneal injection. It may be administered also by intramammary infusion for treatment of mastitis. Supplied: No. 2324—250-cc. and 500-cc. rubber-capped bottles.

Dispensed only by or on the prescription of a veterinarian.

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HOTEL RESERVATIONS — ATLANTIC CITY CONVENTION

Eighty-Ninth Annual Meeting, AVMA, June 23-26, 1952

The three Boardwalk hotels shown here will house most of the convention registrants. Fill out reservation form below and mail it to the Housing Bureau. If hotel of first choice is filled, your request will be forwarded to another hotel.

Confirmation will be sent to you.



HOTELS AND RATES*

Hotel	Single	Double†	Combination (2 rooms, 1 Bath)	Suite
1. Ambassador	\$6.00-12.00	\$8.00-14.00	\$16.00-25.00	\$20.00-26.00
2. Chelsea	5.25- 6.75	6.75-15.00	12.00-15.00	—
3. Ritz-Carlton	6.00-12.00	8.00-14.00	20.00-25.00	25.00-30.00

*The Ambassador will be convention headquarters. Good accommodations are available in a wide range of prices at many hotels besides the three listed here; persons desiring accommodations at hotels other than those listed should write to the Housing Bureau, 16 Central Pier, Atlantic City—stating the type and price wanted. Number of single rooms is limited. All rates subject to 3 per cent municipal tax.

†All double rooms at the Ambassador and Ritz-Carlton have twin beds.

----- Cut Off Here -----

HOTEL RESERVATION FORM — AVMA CONVENTION

To: Housing Bureau, 16 Central Pier, Atlantic City, N. J. Date

Please make reservations indicated below:

(Three choices MUST be shown.)

First choice hotel

Second choice hotel

Third choice hotel

Accommodations and Rates Per Day Desired:

- ☐ Single room at \$.....
- ☐ Double-bed room at \$.....
- ☐ Twin-bed room at \$.....
- ☐ Suite at \$.....
- ☐ Combination for persons at \$..... per combination

Arriving on (date) at a.m. p.m.

Leaving on (date) at a.m. p.m.

Room will be occupied by (attach list of additional names if necessary):

Name City and State

Name City and State

Your Name (print or type)

Street Address

City Zone State

DRAMATIC RESULTS

IN SWINE DYSENTERY



96% RECOVERED*...

The remarkable curative properties of orally administered bacitracin in swine dysentery were described in a recently published report.*

In this study, 26 pigs (35 to 125 lbs.) were given 100,000 units of bacitracin daily by mouth for a period of six days. "Dramatic improvement" was noted in 25 animals, or 96 per cent of those treated. These results were superior to those obtained with sulfonamides and sodium arsanilate, which were employed in control animals. The authors stated that their results coincide with unreported results of bacitracin therapy in other herds afflicted with swine dysentery.

For the management of swine dysentery and diarrheas in dogs, Bacitracin Oral Tablets-C.S.C. are a convenient means of instituting treatment with this antibiotic. Containing 10,000 units of bacitracin each, they are available in bottles of 10 and 75 through regular supply sources of veterinary medications.

*Graham, R.; Boley, L. E., and Woods, G. T.: Bacitracin in Necrotic Enteritis of Swine, *North Am. Vet. J.* 17:336 (Nov.) 1950.

Rose, H. T.: The Use of Bacitracin in Small Animal Medicine, *J. Am. Vet. M.A.* 117:306 (Oct.) 1950.

CSC

C.S.C. Pharmaceuticals

A DIVISION OF COMMERCIAL SOLVENTS CORPORATION, 17 EAST 47TH STREET, NEW YORK 17, N. Y.

BACITRACIN ORAL TABLETS



It's a fact that
P2S ointment*
 does a remarkable
 job in treating
 mastitis and
 topical
 lesions



Each 7.5 gram tube contains:

Penicillin	100,000 units
Streptomycin	50 mg.
Sulfanilamide	5%
Sulfathiazole	5%



**HAVER-GLOVER
 LABORATORIES**

KANSAS CITY, MISSOURI

Quick, efficient
immunity against
the virus of
distemper is
produced in healthy
puppies at an
early age.



(INTRADERMAL)

Canine Distemper Vaccine

(LOCKHART)

1. *Reaction-free vaccine*—incapable of producing distemper during immunizing period. A safe product—contact of susceptible puppies with those being immunized is permissible without fear of establishing infection in either.
2. *Intradermal administration* has advantages, including requirement of professional service for administration, at which time improper management and any nutritional errors may be corrected to assure immunogenic response.
3. *Repeat injection* pyramids immunity to effective levels and allows opportunity for clinician to observe development over critical period.
4. *Dosage recommendation*: Two doses of 1 cc. each administered intradermally (flank or axilla) at 7 to 14 day intervals. A third or booster injection may be given if desired (six to seven months of age) for those treated with two doses at a very early age.

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ASHE LOCKHART, INC.

800 Woodswether Rd.

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a veterinarian
is an old soldier
that eats
vegetables



25 years ago, the late Dr. J. H. Spence of Clinton, Iowa, asked a grade school class to define *veterinarian* . . . and one little charmer gave him the classic definition you see above. It seems funny now . . . but the sad part about it was that *then*, millions of Americans knew little more about veterinarians than this Iowa schoolgirl.

Since those days, the veterinarian has "come into his own."

Part of this recognition and acceptance is certainly due to the effort of the Associated Serum Producers . . . in their constant, hard-hitting educational campaign to inform the public about the importance of veterinary services. As a founder member, Jen-Sal has contributed heavily to ASP efforts. We are confident that this has paid off for the veterinary profession . . . and we are grateful for the reciprocal spirit the profession has shown us in returning the favor.

Jensen-Sal